

***Annual Groundwater
Monitoring Status Report
for Waste Area Group 2 for
Fiscal Year 2004***

**Idaho
Completion
Project**

Bechtel BWXT Idaho, LLC

August 2004

**ICP/EXT-04-00484
Revision 0
Project No. 23037**

Annual Groundwater Monitoring Status Report for Waste Area Group 2 for Fiscal Year 2004

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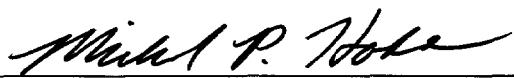
**Idaho Completion Project
Idaho Falls, Idaho 83415**

**Prepared for the
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Assistant Secretary for Environmental Management
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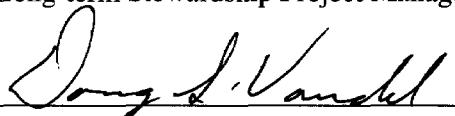
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ABSTRACT

This report presents the results of groundwater monitoring activities conducted within Waste Area Group 2 at the Idaho National Engineering and Environmental Laboratory during fiscal year 2004.

Groundwater samples were collected from five perched water wells and six Snake River Plain Aquifer wells. Two perched water wells were dry and, therefore, not sampled. Constituents included in the analysis were chromium, tritium, strontium-90, and gamma-emitting isotopes. Using an interface probe, additional monitoring was conducted at one perched water well to determine the presence and thickness of a floating organic layer at the water table.

In perched water wells, tritium, strontium-90, and radium-226 were detected above their respective maximum contaminant levels. Tritium was detected above its maximum contaminant level of 20,000 pCi/L in well PW-11. Strontium-90 was detected above its maximum contaminant level of 8 pCi/L in perched wells PW-12, USGS-053, USGS-055, and USGS-054. Radium-226 was detected in wells PW-12 and USGS-054 above the maximum contaminant level of 5 pCi/L, but concentrations were near the minimum detectable activity. Analysis for radium-226 was done using gamma spectroscopy—which is known to have a high bias for radium-226—rather than using alpha spectrometry. The cobalt-60 concentration in well PW-12 has declined to 62.2 pCi/L, which is below the maximum contaminant level of 200 pCi/L.

In the aquifer wells, chromium was the only constituent detected above its maximum contaminant level. Chromium concentrations in wells TRA-07 and USGS-065 were greater than the 100 µg/L maximum contaminant level, with a maximum concentration of 159 µg/L in TRA-07. Except for well Highway-3, however, chromium concentrations in aquifer wells sampled were above background levels. All other constituents were below maximum contaminant levels, although tritium concentrations were above background concentrations in all aquifer wells except Highway-3.

Water levels were measured at Waste Area Group 2 during June 2004 to evaluate the direction of groundwater flow, and they indicate a general south-southwest flow.

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ACRONYMS

DOE-ID	U.S. Department of Energy Idaho Operations Office
EPA	U.S. Environmental Protection Agency
FY	fiscal year
INEEL	Idaho National Engineering and Environmental Laboratory
MCL	maximum contaminant level
RPD	relative percent difference
SAM	Sample and Analysis Management
SRPA	Snake River Plain Aquifer
WAG	waste area group

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1. INTRODUCTION

Samples from the Snake River Plain Aquifer (SRPA) and perched water beneath Waste Area Group (WAG) 2 at the Idaho National Engineering and Environmental Laboratory (INEEL) (Figure 1) were collected and analyzed during fiscal year (FY) 2004 in accordance with the *Groundwater Monitoring Plan for the Test Reactor Area Operable Unit 2-13* (DOE-ID 2003a). Groundwater monitoring being conducted satisfies some of the requirements in the *Final Record of Decision for Test Reactor Area for Operable Unit 2-13 at the Idaho National Engineering and Environmental Laboratory* (DOE-ID 1997) and the *Record of Decision for the Test Reactor Area Perched Water System, Operable Unit 2-12* (DOE-ID 1992). This FY 2004 report is the second annual report following completion of the *First Five-Year Review Report for the Test Reactor Area, Operable Unit 2-13, at the Idaho National Engineering and Environmental Laboratory* (DOE-ID 2003b).

Groundwater samples were collected during October 2003 and March 2004 to complete the WAG 2 sampling for FY 2004. Samples were collected from seven wells completed in the SRPA and five wells completed in perched water bodies above the SRPA. Sampling was conducted to (a) evaluate contaminant concentrations in the deep perched water system and the SRPA after discharge to the former warm waste ponds was eliminated, (b) verify the accuracy of SRPA contaminant concentration trends predicted by computer modeling, and (c) verify that groundwater concentrations do not increase to unacceptable levels.

1.1 Purpose

This document presents and summarizes groundwater sample data collected during FY 2004 for the wells covered under the groundwater monitoring plan (DOE-ID 2003a). The data presented here supplement groundwater monitoring data presented in the first five-year review report (DOE-ID 2003b) and previous annual monitoring report (INEEL 2003). Information on water quality and on contaminant concentrations and trends is presented in Section 2. Recommendations are presented in Section 3.

1.2 Groundwater Monitoring Requirements

The groundwater monitoring plan (DOE-ID 2003a) calls for samples to be collected from perched water wells PW-11, PW-12, PW-14, USGS-053, USGS-054, USGS-055, and USGS-056. But no samples were collected from perched water wells PW-14 and USGS-056, because they were dry. In addition, well PW-13 is to be monitored with an interface probe to ascertain the presence and thickness of a floating organic layer. Groundwater samples are also required from aquifer wells TRA-06A, TRA-07, TRA-08, USGS-058, USGS-065, and Highway-3. Newly installed well Middle-1823 was also sampled as part of this effort.

Groundwater monitoring at WAG 2 will continue until the U.S. Department of Energy Idaho Operations Office, the U.S. Environmental Protection Agency (EPA), and the Idaho Department of Environmental Quality determine that monitoring is no longer necessary based on results from a five-year review. Table 1 summarizes the construction details for each of the WAG 2 groundwater monitoring wells.

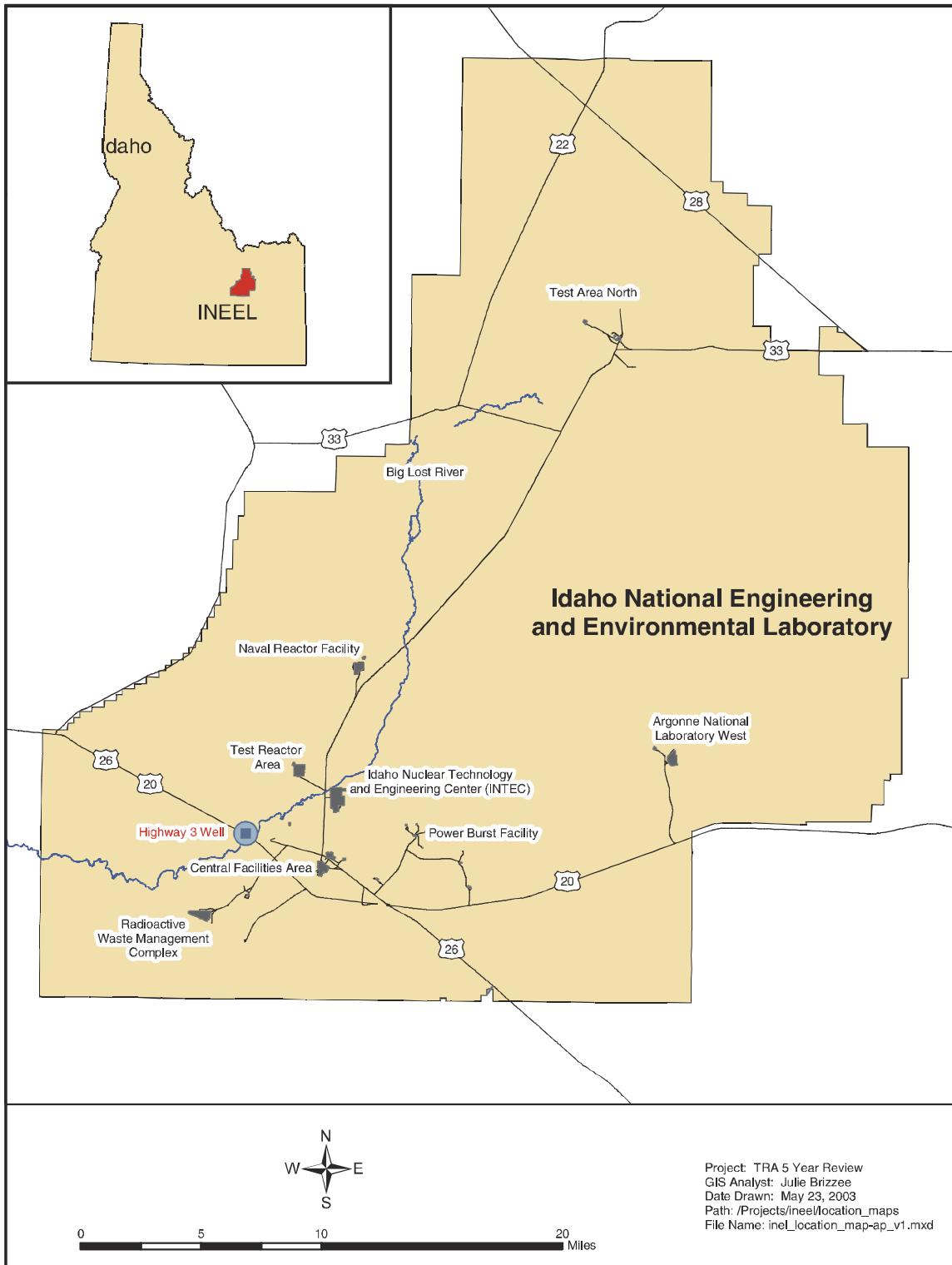


Figure 1. Map showing the location of the Idaho National Engineering and Environmental Laboratory and its facilities.

Table 1. Summary of well information for WAG 2 groundwater monitoring wells.

Well Name	Brass Cap Elevation (ft)	Screened Interval(s) (ft bgs)	Well Use
PW-11 ^a	4,916.5	109–129	Monitoring
PW-12 ^a	4,923.7	108–128	Monitoring
PW-13 ^a	4,923.8	57–87	Monitoring
PW-14 ^a	4,918.7	93–123	Monitoring
USGS-053 ^a	4,922.1	50–67 75–80	Monitoring
USGS-054 ^a	4,920.9	60–91	Monitoring
USGS-055 ^a	4,919.1	44–81	Monitoring
USGS-056 ^a	4,921.4	59–80	Monitoring
TRA-06A	4,925.6	528–558	Monitoring/water level
TRA-07	4,931.6	463–493	Monitoring/water level
TRA-08	4,934.9	471–501	Monitoring/water level
MTR Test	4,719.18	447–588	Water level
SITE 19	4,926.32	472–512 532–572 596–616 780–862	Water level
USGS-058	4,918.37	218–503	Monitoring/water level
USGS-065	4,925.0	456–498	Monitoring/water level
USGS-076	4,929.69	457–718	Water level
USGS-079	4,931.08	281–702	Water level
USGS-099	4,872.36	340–450	Water level
USGS-121	4,909.65	449–475	Water level
Middle-1823		680–720	Monitoring/water level
Highway-3	4,981.6	680–750	Monitoring/water level

a. Perched well.

bgs = below ground surface

2. MONITORING RESULTS

With the exception of analyses for radionuclides, samples were analyzed in accordance with established INEEL and EPA methods; radionuclide analyses were performed in accordance with the “Idaho National Engineering and Environmental Laboratory Sample and Analysis Management Statement of Work for Analytical Services” (ER-SOW-394). That statement of work establishes the minimum required detection limits and quality assurance requirements for the analytical methods to be employed. All analytical results were validated to resident procedures established by INEEL Sample and Analysis Management (SAM). Table 2 summarizes the sample data from FY 2004. Complete sampling results are presented in Appendix A. The quality assurance and control sample results are discussed in Appendix B.

2.1 Perched Water Well Sampling Results

Groundwater samples were collected from perched water wells PW-11, PW-12, USGS-053, USGS-055, and USGS-054. Samples were not collected from perched water wells PW-14 and USGS-056, because they were dry at the time of sampling. Perched water samples were analyzed for chromium (filtered and unfiltered), strontium-90, tritium, and gamma-emitting isotopes. When radiological results are reported in the text of this document, only the concentrations are given; the associated uncertainties are listed in Table 2 and Appendix A. The individual constituents are summarized in the following subsections. Sample concentrations are compared with maximum contaminant levels (MCLs). However, these comparisons are not intended to imply that the perched water bodies represent an aquifer capable of long-term use. In addition to the usual analytes, perched wells were analyzed for iodine-129 and technetium-99 in October 2003. Iodine-129 and technetium-99 analytes were below detection limits in all samples (Appendix A).

2.1.1 Chromium

Chromium analytical results from the perched water wells were below the EPA-defined MCL of 100 µg/L during the FY 2004 sampling events. However, chromium concentrations exceeded background concentrations in wells PW-11, PW-12, and USGS-054. Figure 2 shows filtered chromium concentrations in the individual wells (perched and aquifer) from October 2003 and March 2004.

2.1.2 Gamma-Emitting Isotopes

Two gamma-emitting isotopes (cobalt-60 and radium-226) were present at detectable concentrations during the FY 2004 sampling. Cobalt-60 was detected in samples from well PW-12, and radium-226 was detected in samples from wells PW-12 and USGS-054.

Although not detected in any of the perched wells during the October 2003 sampling, radium-226 was detected in the March 2004 sampling event in wells PW-12 at 39.7 pCi/L and in the duplicate sample from well USGS-054 at 16 pCi/L (radium-226 was not detected in the regular sample from USGS-054). Both of these concentrations exceed the EPA-defined MCL of 5 pCi/L for radium-226/radium-228. However, radium-226 results were obtained by direct gamma spectrometry and are flagged with “J” validation flags as estimated values. General Engineering Laboratories quantifies radium-226 using bismuth-214 daughter photopeak at 609 keV. It is not possible to quantify radium-226 by spectrometry without a separate analysis to allow time for the ingrowth and equilibration of radon daughter products. Therefore, sample results are not considered representative of radium concentrations in the groundwater.

Table 2. Summary of analytes in the WAG 2 wells for the detected constituents.^{a,b}

Well	Sample Date	Cobalt-60 (MCL = 200 pCi/L)			Strontium-90 (MCL = 8 pCi/L)			Tritium (MCL = 20,000 pCi/L)			Chromium (filtered) (MCL = 100 µg/L)			Chromium (unfiltered) (MCL = 100 µg/L)		
		pCi/L		+/-	VF	pCi/L		pCi/L		+/-	VF	µg/L		LF	VF	µg/L
		U	UJ	U	UJ	U	UJ	U	UJ	U	UJ	U	UJ	U	UJ	U
Aquifer wells																
HWY-3	10/20/2003	-3.2	1	U	0.136	0.089	U	85.6	78.2	U	0.33	UE	UJ	0.33	UE	UJ
HWY-3	03/10/2004	5.03	2.18	UJ	0.171	0.16	U	169	96.3	U	1.43	U	1.43	U		
MIDDLE-1823	10/28/2003	0.993	1.47	U	0.232	0.143	U	2,210	120	6.61	B		13.1			
MIDDLE-1823	03/23/2004	2.69	1.63	U	-0.0749	0.176	U	2,260	163	6.44	B	J	12.1	J		
USGS-058	10/23/2003	0.551	0.744	U	0.146	0.115	U	2,070	157	13.4	E	R	16.8	E	R	
USGS-058	03/10/2004	-0.517	1.76	U	-0.177	0.179	U	1,910	151	16.7			15.6			
USGS-065	10/27/2003	0.298	1.16	U	0.0934	0.0885	U	8,940	223	103			101			
USGS-065	03/11/2004	0.0304	1.81	U	0.127	0.144	U	8,610	298	109			107			
TRA-06	10/20/2003	-1.13	0.901	U	0.195	0.157	U	2,500	126	6.29	BE	J	5.87	BE	J	
TRA-06	03/11/2004	0.0416	3.89	U	0.272	0.185	U	2,400	171	8.32	B		8.37	B		
TRA-07	10/22/2003	1.64	0.956	U	0.103	0.0669	U	18,300	310	150	E	R	167	E	R	
TRA-07	03/16/2004	0.449	1.97	U	0.0748	0.154	U	18,800	447	136			146			
TRA-08	10/23/2003	-0.421	0.719	U	0.279	0.124	UJ	3,960	145	26.9	E	R	50.3	E	R	
TRA-08	03/16/2004	-0.56	1.65	U	0.272	0.15	U	4,450	218	31			40.2			
Perched wells																
PW-11	10/28/2003	2.54	0.951	UJ	1.88	0.265		46,300	569	34.6			32.7			
PW-11	03/08/2004	4.61	2.87	U	0.975	0.214		37,700	643	31.1			32.7			
PW-12	10/29/2003	62.2	4.23	76.3	8.9			1,630	155	5.03			B	5.03	B	
PW-12	03/17/2004	52.7	6.03	67.7	8.62			1,610	146	3.66	B	J	19.1			
USGS-053	10/29/2003	1.46	0.993	U	46.1	5.71		4,830	162	43.5			44			
USGS-053	03/09/2004	0.14	4.35	U	48	6.2		3,620	191	17.6			18.5			
USGS-054	10/23/2003	-0.477	1.05	U	51	6.81		92.2	102	U	1.38	BE	J	1.52	BE	J

Table 2. (continued).

Well	Sample Date	Cobalt-60 (MCL = 200 pCi/L)			Strontium-90 (MCL = 8 pCi/L)			Tritium (MCL = 20,000 pCi/L)			Chromium (filtered) (MCL = 100 µg/L)			Chromium (unfiltered) (MCL = 100 µg/L)		
		pCi/L	+/-	VF	pCi/L	+/-	VF	pCi/L	+/-	VF	µg/L	LF	VF	µg/L	LF	VF
USGS-054	10/23/2003	0.486	0.688	U	46.8	5.9		147	82	U	1.38	BE	J	1.48	BE	J
USGS-054	03/08/2004	0.651	1.83	U	48.6	7		247	88.5	UJ	5.85	B		6		B
USGS-054	03/08/2004	-1.19	2.04	U	48.6	6.48		122	87	U	5.61	B		5.57		B
USGS-055	10/22/2003	0.842	1.15	U	36.7	4.21		6,190	185		18.7	E	R	22	E	R
USGS-055	03/08/2004	5.08	1.82	UJ	42.5	5.59		13,000	231		27.7			31.6		
USGS-068	10/29/2003	-0.5	0.723	U	0.379	0.12		UJ	270	78.6	22			108		

a. See Appendix A for explanation of validation and laboratory data flags.

b. Bold numbers are greater than MCL.

LF = laboratory flag

MCL = maximum contaminant level

VF= validation flag

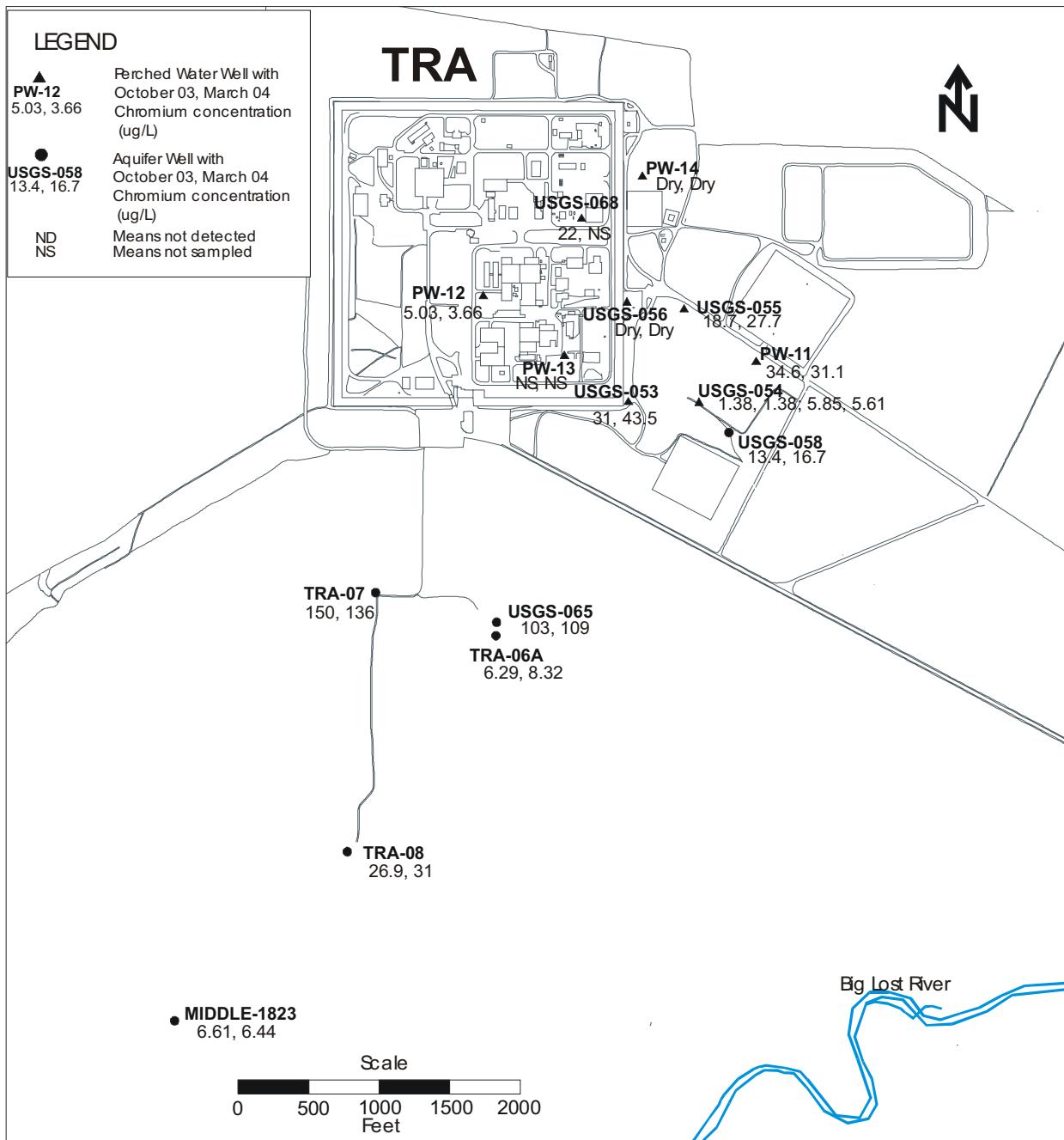


Figure 2. Chromium concentrations ($\mu\text{g/L}$) for October 2003 and March 2004.

Cobalt-60 was detected in samples from well PW-12 at concentrations of 62.2 pCi/L in October 2003 and 52.7 pCi/L in March 2004. Neither detection is above the EPA-defined MCL of 200 pCi/L for cobalt-60. The cobalt-60 concentration in PW-12 declined considerably from the previous years' results, as shown in Figure 3. Cobalt-60 was not present at detectable concentrations in any of the other wells. In addition, other gamma constituents that would generally be expected to accompany cobalt-60 (for example, cerium-144 and cesium-137) were not present in PW-12. The elevated cobalt-60 results appear to be anomalous, but monitoring will continue in order to verify results. The minimum detectable activity for cobalt-60 during the FY 2004 sampling was generally between 3.5 and 15 pCi/L.

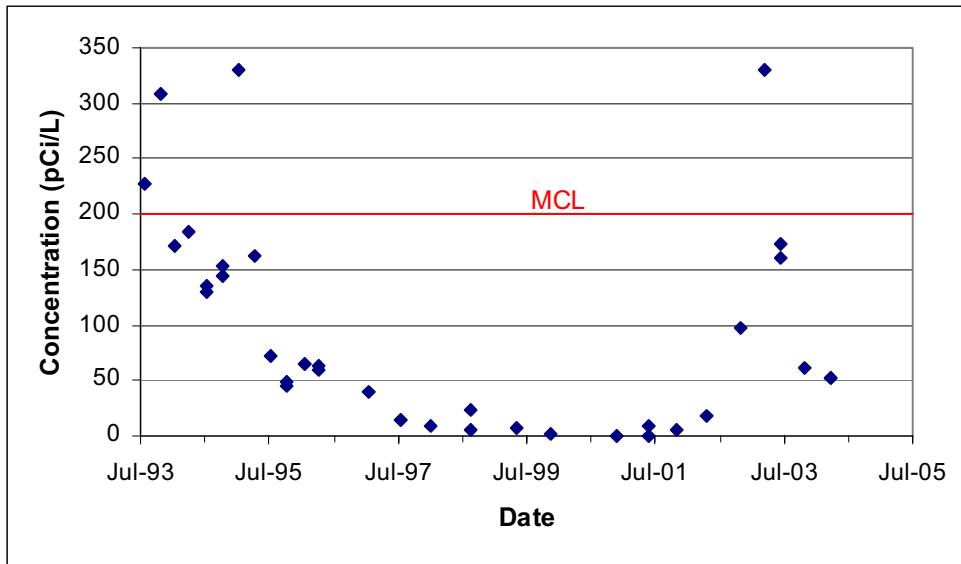


Figure 3. Cobalt-60 concentration (pCi/L) in PW-12.

2.1.3 Strontium-90

Strontium-90 results ranged from nondetect to 76.3 pCi/L in the perched water wells sampled, but only wells PW-12 and USGS-054 exceeded the EPA-defined MCL of 8 pCi/L. Well PW-12 had concentrations of 76.3 pCi/L in October 2003 and 67.7 pCi/L in March 2004. USGS-054 had concentrations of 51 pCi/L (46.2 pCi/L for the field duplicate) in October 2003 and 48.6 pCi/L (48.6 pCi/L for the field duplicate) in March 2004. The minimum detectable activity for strontium-90 was between 0.4 and 0.8 pCi/L. Figure 4 shows strontium-90 concentrations in the individual wells.

Analysis of the data trend for USGS-054 indicates a negative slope or a trend of decreasing concentrations (Figure 5). In contrast, the data trend for PW-12 indicates an overall positive slope (Figure 6). The cyclic nature of the increase in strontium-90 concentration in PW-12 seems to reflect pulses of contamination moving through the well.

2.1.4 Tritium

Tritium is present at detectable concentrations in all of the perched wells sampled but only exceeds the 20,000-pCi/L MCL in well PW-11 (Figure 7). Tritium concentrations in PW-11 were 46,300 pCi/L in October 2003 and 37,700 pCi/L in March 2004. The tritium plot for well PW-11, illustrated in Figure 8, shows statistically significant, decreasing concentrations, with a correlation coefficient of 0.936. The concentration in the March 2004 sample set a new historical low for PW-11. The minimum detectable activity for tritium ranged from 209 to 401 pCi/L for the FY 2004 sampling. The minimum detectable activity for each sample is included in Appendix A.

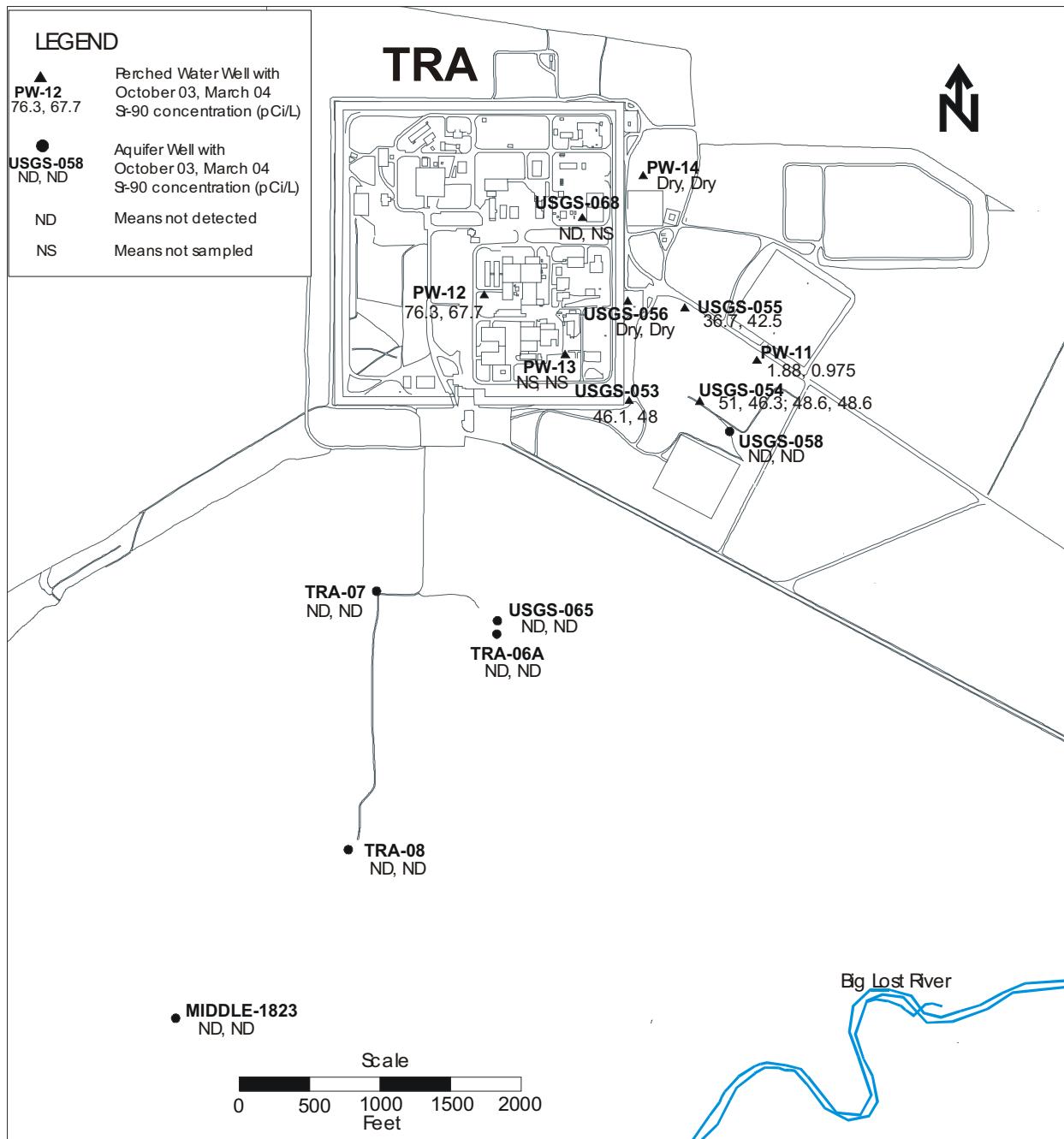


Figure 4. Strontium-90 concentrations (pCi/L) for October 2003 and March 2004.

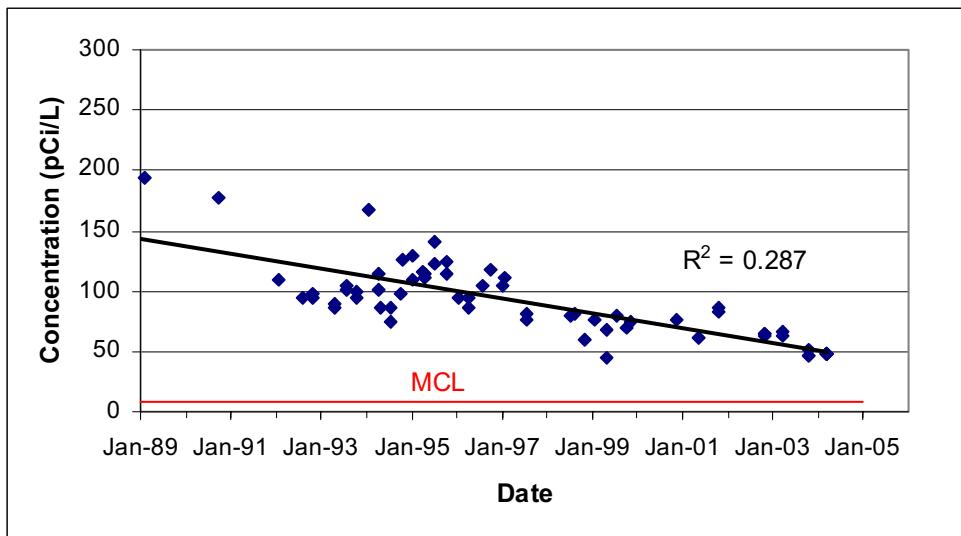


Figure 5. Strontium-90 concentration (pCi/L) in USGS-054.

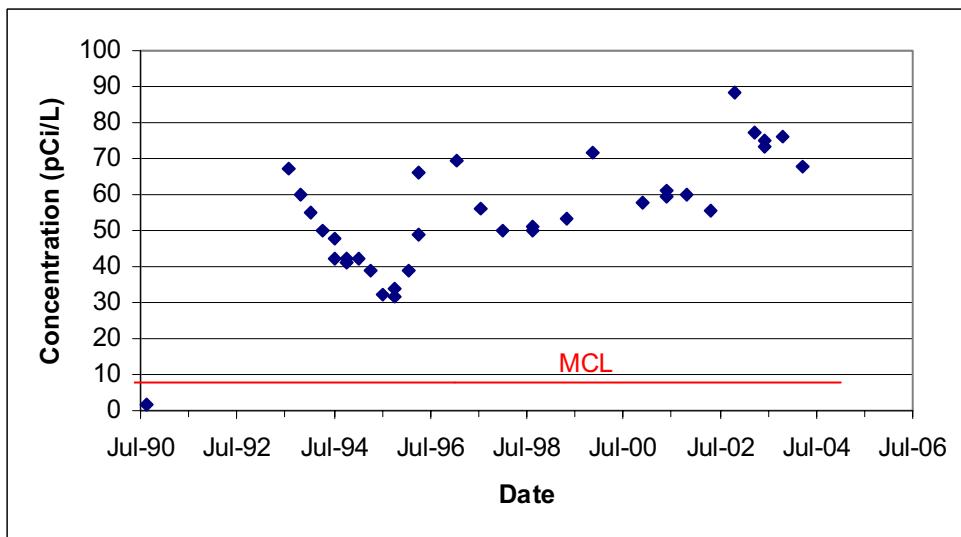


Figure 6. Strontium-90 concentration (pCi/L) in PW-12.

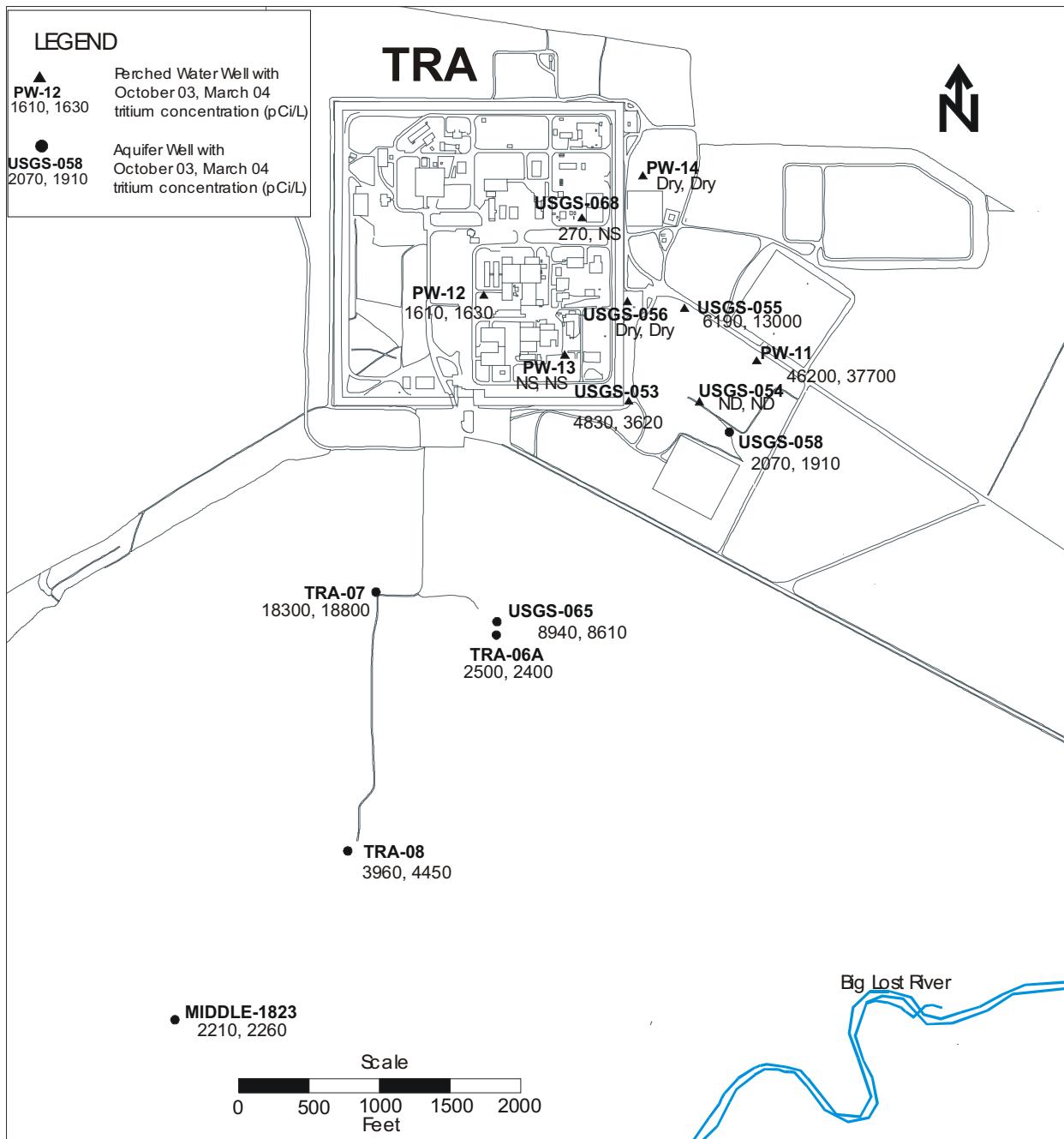


Figure 7. Tritium concentrations (pCi/L) for October 2003 and March 2004.

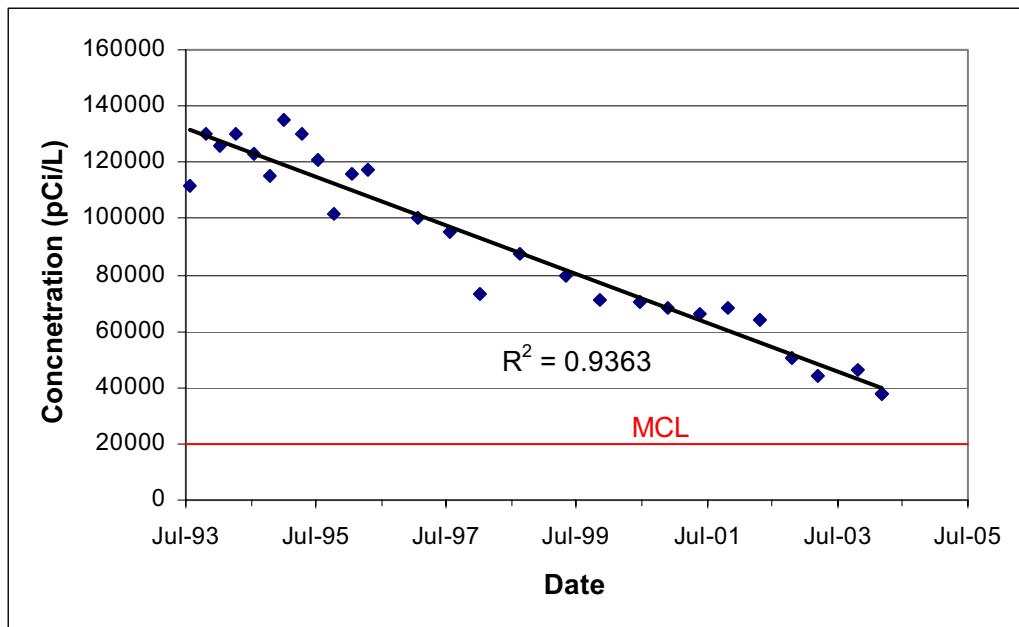


Figure 8. Tritium concentrations (pCi/L) in PW-11.

2.2 Aquifer Well Sampling Results

Groundwater samples were collected from aquifer water wells TRA-06A, TRA-07, TRA-08, USGS-058, USGS-065, Middle-1823, and Highway-3. Aquifer wells were analyzed for chromium (filtered and unfiltered), strontium-90, gamma isotopes, and tritium. The individual constituents are summarized in the following subsections. The results for tritium, strontium-90, and chromium are summarized in Table 2. Comparison to background concentrations at the INEEL and comparison to MCLs for detected analytes is given in Table 3. In addition to the usual analytes, aquifer wells were analyzed for iodine-129 and technetium-99 in October 2003, as agreed to in the five-year review report (DOE-ID 2003b). Iodine-129 and technetium-99 concentrations were below detection limits in all samples.

2.2.1 Chromium

Chromium was present at detectable concentrations from all aquifer wells sampled for WAG 2. With the exception of well Highway-3, chromium concentrations were above background concentrations for all aquifer wells; however, the EPA-defined MCL of 100 µg/L was exceeded only in wells TRA-07 and USGS-065 (Table 3 and Figure 2). Analytical results for TRA-07 indicated a filtered chromium concentration of 150 µg/L in October 2003 and 136 µg/L in March 2004, while results for well USGS-065 showed filtered chromium concentrations of 103 µg/L in October 2003 and 109 µg/L in March 2004. TRA-07 and USGS-065 appear to show a decreasing trend in chromium concentrations (Figures 9 and 10).

2.2.2 Tritium

Tritium was present in all of the aquifer wells sampled but at concentrations below the 20,000-pCi/L MCL. The highest concentration, 18,800 pCi/L, occurred in TRA-07 in the March 2004 sample. Figure 7 shows tritium concentrations in the perched and aquifer wells for October 2003 and March 2004.

Table 3. WAG 5 groundwater quality summary.

Analyte	Background ^a	Maximum	Minimum	Wells above MCL	MCL
Perched Water Wells					
Chromium (filtered)	2 to 3	43.5	ND	0	100 µg/L
Chromium (unfiltered)		108	ND	0	100 µg/L
Cobalt-60	0	62.2	ND	0	200 pCi/L
Radium-226	0	54.9	ND	2	5 pCi/L ^b
Strontium-90	0	76.3	ND	3	8 pCi/L
Tritium	75 to 150	46,300	ND	1	20,000 pCi/L
Aquifer Wells					
Chromium (filtered)	2 to 3	150	ND	2	100 µg/L
Chromium (unfiltered)		167	ND	2	100 µg/L
Radium-226	0	20.6	ND	1	5 pCi/L ^b
Tritium	75 to 150	18,800	1,910 ^c	0	20,000 pCi/L

a. Background concentrations are from Knobel, Orr, and Cecil (1992).

b. Represents MCL for radium-226 and -228 combined.

c. Tritium was not detected in the Highway-3 well.

MCL = maximum contaminant level

ND = not detected

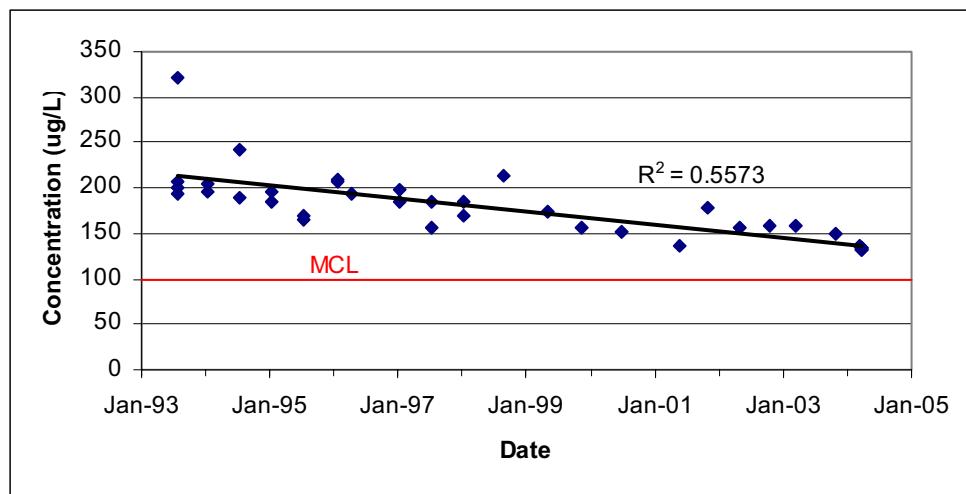


Figure 9. Chromium concentration (µg/L) in TRA-07.

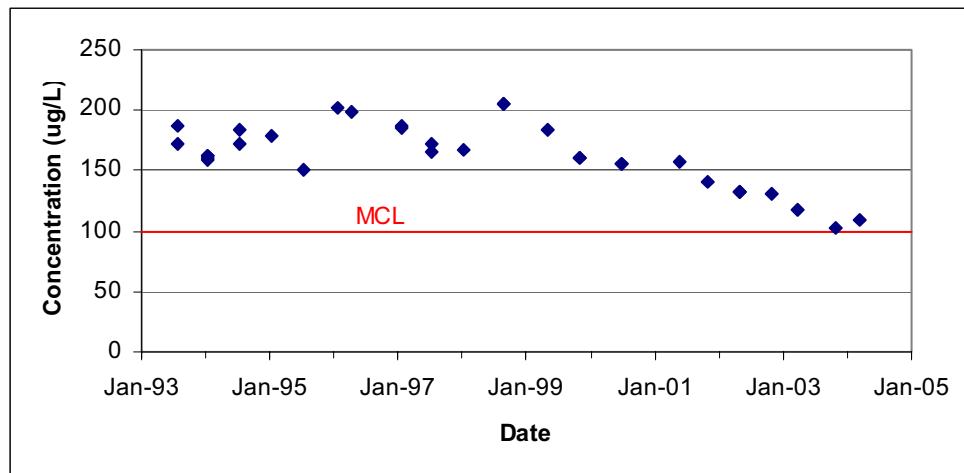


Figure 10. Chromium concentration ($\mu\text{g/L}$) in USGS-065.

2.2.3 Strontium-90 and Gamma Spectrometry

Strontium-90 was not detected in any of the aquifer wells sampled. Figure 4 shows strontium-90 concentrations in the perched and aquifer wells for October 2003 and March 2004.

One gamma-emitting isotope (radium-226) was detected by gamma spectrometry during the FY 2004 sampling events. Radium-226 was detected in wells TRA-06 at 8.44 pCi/L in October 2003 and TRA-07 at 20.6 pCi/L in March 2004. However, these radium-226 detections are suspect for the reasons given in Subsection 2.1.2.

2.2.4 Field Measured Parameters

Specific conductance, dissolved oxygen, pH, and temperature were measured in the field at the time of sampling. These parameters are summarized in Table 4 for the March 2004 sampling event. The dissolved oxygen readings indicate that oxidizing conditions exist in the SRPA. Specific conductance measurements ranged from 0.331 to 0.607 mmhos/cm, with the highest value in well TRA-07. The pH values were relatively consistent at 7.5 to 8.0.

2.3 Interface Probe Monitoring

Well PW-13 was monitored on four occasions using an interface probe to determine the presence and thickness of a floating organic layer on the water table (Table 5). Product was encountered three of the four times measurements were taken. Product thickness showed a high degree of variability. Monitoring at PW-13 will continue in order to check for the presence and thickness of this organic layer. Two new wells were installed near PW-13 to assist in monitoring the diesel contamination in this area. The sampling results for the new wells are reported in the *Response to the First Five-Year Review Report for the Test Reactor Area, Operable Unit 2-13, at the Idaho National Engineering and Environmental Laboratory*.^a

a. Draft in progress, DOE/NE-ID-11189, U.S. Department of Energy Idaho Operations Office.

Table 4. Field measured parameters for March 2004 sampling event.

Well Name	Date Sampled	Temperature (°C)	pH	Specific Conductivity (mmhos/cm)	Dissolved Oxygen (mg/L)
Aquifer Wells					
Highway-3	3/10/2004	18.22	7.85	0.331	7.19
Middle-1823	3/23/2004	15.4	7.57	0.499	5.98
TRA-06	3/11/2004	13.29	7.74	0.438	7.1
TRA-07	3/16/2004	12.81	7.86	0.607	7.59
TRA-08	3/25/2004	14.88	8.02	0.439	7.55
TRA-08	3/16/2004	12.94	7.96	0.448	6.98
USGS-58	3/10/2004	13.12	7.79	0.434	7.46
USGS-65	3/11/2004	13.06	7.63	0.625	7.38
Perched Wells					
PW-11	3/8/2004	16.35	7.79	0.657	6.89
PW-12	3/17/2004	15.61	7.48	0.483	5.13
USGS-53	3/9/2004	16.97	7.3	0.554	4.02
USGS-54	3/8/2004	16.9	7.54	0.546	6.06
USGS-55	3/8/2004	14.3	7.45	0.553	5.41

Table 5. Interface probe measurements for well PW-13.

Date	Depth to Water (ft)	Water Level Elevation (ft)	Product Thickness (ft)
12/10/2003	71.08	4,852.74	3.3
12/22/2003	70.64	4,853.18	1.2
1/29/2004	72.17	4,851.65	3.07
4/3/2004	69	4,854.82	0

2.4 Water Level Measurements

Water levels were measured in 21 wells at and near WAG 2 to determine the direction of groundwater flow (Table 6). Water level data were used to generate a groundwater contour map (Figure 11). The water levels measured in June 2004 are consistent with past measurements for the WAG 2 area. Figure 11 shows that the groundwater beneath WAG 2 generally flows in a southwest to south direction. The measurements for TRA-06 and USGS-065 were not used to construct the water level map. The map uses a 2-ft contour interval because of uncertainties about the accuracy of the survey data and/or borehole deviation effects. Therefore, measuring points and land surfaces should be resurveyed at each of the WAG 2 wells to confirm these results.

Table 6. WAG 2 groundwater level measurement data from June 2004.

Well	Date	Depth to Water below Top of Casing (ft)	Stick-up (ft)	Depth to Water (ft bgs)	Ground Elevation (ft)	Deviation Correction (ft)	Water Elevation (ft)
MTR-Test	6/8/2004	468.05	0.61	467.44	4,917.15	0.02	4,449.73
SITE-19	6/8/2004	478.42	1.56	476.86	4,926.33	—	4,449.47
TRA-06	6/8/2004	479.79	1.48	478.31	4,925.6	0.19	4,447.29
TRA-07	6/8/2004	485.5	3.76	481.74	4,931.56	0.49	4,450.31
TRA-08	6/8/2004	489.38	2.5	486.88	4,934.93	2.1	4,450.15
USGS-036	6/8/2004	481.94	1.5	480.44	4,929.2	0.05	4,448.76
USGS-037	6/8/2004	482.09	1.2	480.89	4,929.38	0.05	4,448.49
USGS-039	6/8/2004	483.74	1.21	482.53	4,930.95	0.09	4,448.41
USGS-058	6/8/2004	470.36	1.53	468.83	4,918.37	—	4,449.54
USGS-065	6/8/2004	473.13	0.55	472.58	4,925.01	—	4,452.43
USGS-076	6/8/2004	482.55	1.65	480.9	4,929.7	—	4,448.80
USGS-079	6/8/2004	483.97	2.02	481.95	4,931.08	—	4,449.13
USGS-084	NM	NM	NM		4,937.9	0.01	NM
USGS 098	6/10/2004	421.65	2.95	735.5	4,883.29	—	4,464.59
USGS-099	6/10/2004	407.72	2.79	735.5	4,872.36	—	4,467.43
USGS-121	NM	NM	NM		4,909.65	1.73	NM
ICPP-MON-A-164C	6/8/2004	506.67	3.21	503.46	4,951.89	0.02	4,448.45
ICPP-MON-A-166	6/8/2004	510.74	2.84	507.9	4,956	—	4,448.10
ICPP-MON-A-164B	6/8/2004	503.35	3.04	500.31	4,948.66	—	4,448.35
USGS 040	6/8/2004	469.39	2.41	466.98	4,916.16	0.32	4,449.50
USGS-042	6/8/2004	470.68	2.11	468.57	4,917.94	0.08	4,449.45

bgs = below ground surface

NM = not measured

Groundwater elevations were ascertained by subtracting depth-to-water measurements from surveyed elevation data and then correcting for borehole deviation in wells with established correction factors. Correction factors are based on gyroscopic and/or magnetic borehole deviation surveys. Borehole deviation logs are available for nine of the 15 wells on the contour maps. The six wells that have no borehole deviation logs are Site-19 and USGS-058, -065, -076, -079, and -099. The WAG 2 water level measurement data from June 2004 are presented in Table 6.

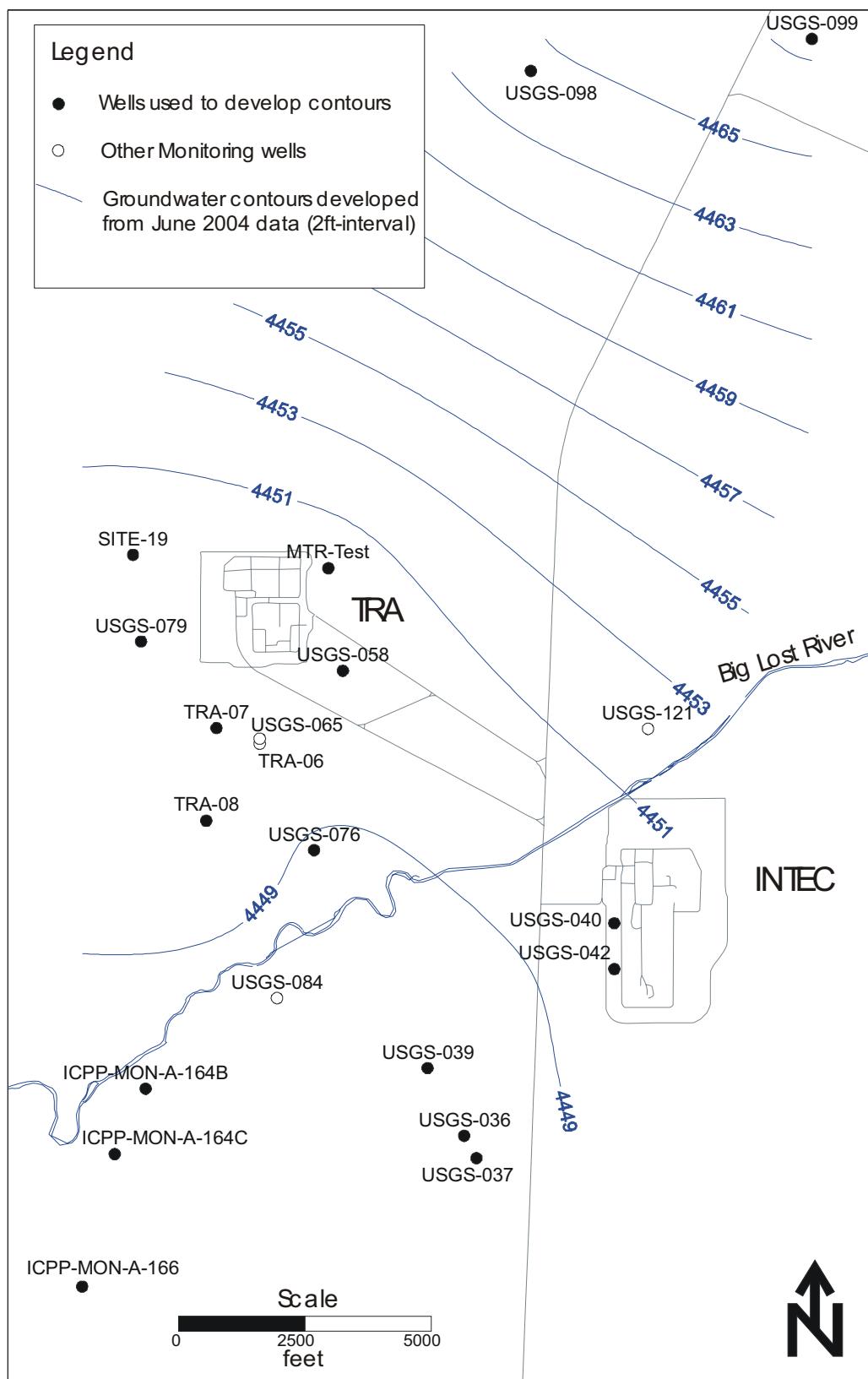


Figure 11. WAG 2 groundwater contours with 2-ft contour interval.

3. RECOMMENDATIONS

Continued groundwater monitoring is recommended at the prescribed frequency at wells currently identified in the WAG 2 groundwater monitoring plan (DOE-ID 2003a). For overall comparability of the groundwater analytical data, continued collection of groundwater samples for WAG 2 is also recommended at approximately the same time of year for each annual event. WAG 2 groundwater sampling is currently scheduled for October and March each year.

In addition, the elevation of the brass marker and water level measuring point should be surveyed at each of the WAG 2 wells to evaluate the accuracy of the calculated water table elevations. The wells that need to be surveyed are TRA-06, USGS-058, and USGS-065. Furthermore, gyroscopic borehole deviation logs should be done during scheduled well maintenance activities at all WAG 2 wells that currently have no gyroscopic survey logs.

4. REFERENCES

DOE-ID, 1992, *Record of Decision for the Test Reactor Area Perched Water System, Operable Unit 2-12*, U.S. Department of Energy Idaho Operations Office, December 1992.

DOE-ID, 1997, *Final Record of Decision for Test Reactor Area for Operable Unit 2-13 at Idaho National Engineering and Environmental Laboratory*, DOE/ID-10586, U.S. Department of Energy Idaho Operations Office, December 1997.

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DOE-ID, 2003b, *First Five-Year Review Report for the Test Reactor Area, Operable Unit 2-13, at the Idaho National Engineering and Environmental Laboratory*, DOE/ID-11099, Rev. 0, U.S. Department of Energy Idaho Operations Office, September 2003.

ER-SOW-394, 2004, “Idaho National Engineering and Environmental Laboratory Sample and Analysis Management Statement of Work for Analytical Services,” ER-SOW-394, Rev. 2, Idaho National Engineering and Environmental Laboratory, May 2004.

INEEL, 2003, *Annual Groundwater Monitoring Status Report for Waste Area Group 2 for Fiscal Year 2003*, INEEL/EXT-03-01082, Rev. 0, Idaho National Engineering and Environmental Laboratory, October 2003.

Knobel, L. L., B. R. Orr, and L. D. Cecil, 1992, “Summary of Background Concentrations of Selected Radiochemical and Chemical Constituents in Groundwater from the Snake River Plain Aquifer Idaho: Estimated from an Analysis of Previously Published Data,” *Journal of Idaho Academy of Science*, Vol. 28, No. 1, 1992.

Appendix A

Analytical Results

Appendix A

Analytical Results

This appendix presents the analytical data collected as a result of groundwater sampling at Waste Area Group 2 during October 2003 and March 2004. Data are on the compact disc in the sleeve at back of this report. Data qualifier flags used in this appendix are a consolidation of laboratory- and validation-assigned flags and are defined as follows:

Inorganics

- B—the result is less than the contract-required reporting limit but greater than or equal to the instrument detection limit.
- E—the post-digestion spike was outside the control limits.
- N—the matrix spike recovery was outside control limits.
- U—the analyte was not detected.
- UJ—the analyte was analyzed for, but it was not detected. The associated value is an estimate and might be inaccurate or imprecise.
- R—the accuracy of the data is so questionable that it is recommended that the data not be used. The “R” flag overrides all other applicable flags.

Radiological Qualifier Flags

- J—the associated value is estimated. The result might not be an accurate representation of the amount of activity actually present in the sample.
- R—the accuracy of the data is so questionable that it is recommended that the data not be used. The “R” flag overrides all other applicable flags.
- U—the radionuclide is not considered present in the sample (i.e., nondetect).
- UJ—the radionuclide might or might not be present, and the result is considered highly questionable. The associated value is an estimate and might be inaccurate or imprecise. The result is considered a nondetect for project data interpretation purposes.

Global Environmental Monitoring System - Core Data Repository											
Field Sample Number	Location	Depth	Compound			Sample Result	Error	Result Qualifier	Validation Flag	Date Collected	MDA Code
			Americium-241	Antimony-125	Cerium-144						
TRA18701RH	TRA-07	485.32	Americium-241	-4.64E+00	1.03E+01	GMS	3.33E+01	F	U	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Antimony-125	4.68E+00	4.40E+00	GMS	1.66E+01	F	U	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Cerium-144	2.26E+00	8.92E+00	GMS	3.17E+01	F	U	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Cesium-134	-1.32E+00	1.88E+00	GMS	6.39E+00	F	U	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Cesium-137	4.52E+00	1.06E+00	GMS	5.81E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Cobalt-58	-2.07E+00	1.97E+00	GMS	6.48E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Cobalt-60	4.49E-01	1.97E+00	GMS	7.50E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Europium-152	2.27E+00	4.91E+00	GMS	1.70E+01	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Europium-154	-3.24E+00	4.86E+00	GMS	1.73E+01	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Europium-155	3.48E+00	4.99E+00	GMS	1.81E+01	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Manganese-54	-5.08E-01	1.76E+00	GMS	6.14E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Niobium-95	-1.50E+00	1.95E+00	GMS	6.57E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Radium-226	2.06E+01	6.72E+00	GMS	1.23E+01	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Ruthenium-103	3.86E-01	1.78E+00	GMS	6.49E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Ruthenium-106	2.35E+00	1.62E+01	GMS	5.83E+01	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Silver-108m	8.53E-01	1.52E+00	GMS	5.66E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Silver-110m	2.28E-01	1.58E+00	GMS	5.72E+00	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Uranium-235	2.85E-01	9.78E+00	GMS	3.43E+01	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Zinc-65	4.38E-01	4.34E+00	GMS	1.61E+01	F	J	03/16/2004	PCI/L
TRA18701RH	TRA-07	485.32	Zirconium-95	1.25E+00	3.41E+00	GMS	1.23E+01	F	J	03/25/2004	UG/L
TRA10501LL	TRA-07	485.32	Chromium	131		SW6010B		T	U	03/25/2004	UG/L
TRA10502LL	TRA-07	485.32	Chromium	135		SW6010B		T	U	03/25/2004	UG/L
TRA187015C	TRA-07	485.32	Chromium	146		SW6010B		F	U	03/16/2004	UG/L
TRA18701CU	TRA-07	485.32	Chromium	136		E200.7		T	U	03/16/2004	E200.7
TRA18701R8	TRA-07	485.32	Tritium	1.88E+04	4.47E+02	F	3.21E+02	F	U	03/16/2004	LSC
TRA18701RH	TRA-07	485.32	Strontium-90	7.48E-02	1.54E-01	F	6.30E-01	F	U	03/16/2004	GFP
TRA18601RH	TRA-06	479.6	Americium-241	1.62E+01	1.27E+01	F	4.17E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Antimony-125	-7.22E+00	9.61E+00	F	3.30E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Cerium-144	-2.03E+01	2.06E+01	F	6.68E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Cesium-134	1.20E-01	3.96E+00	F	1.51E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Cesium-137	1.66E+01	8.53E+00	F	1.23E+01	F	U	03/11/2004	PCI/L
TRA18601CU	TRA-06	479.6	Chromium	8.32	B	E200.7		T	U	03/11/2004	E200.7
TRA186015C	TRA-06	479.6	Chromium	8.37	B	F	1.49E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Cobalt-58	2.71E+00	3.71E+00	F	1.51E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Cobalt-60	4.16E-02	3.89E+00	F	3.33E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Europium-152	1.01E+01	8.77E+00	F	3.94E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Europium-154	5.97E+00	9.33E+00	F	3.47E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Europium-155	-1.78E+00	1.02E+01	F	1.18E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Manganese-54	-1.35E+00	3.69E+00	F	1.60E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Niobium-95	-1.32E+00	4.30E+00	F	3.02E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Radium-226	1.57E+01	8.25E+00	F	1.42E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Ruthenium-103	-1.68E+00	4.06E+00	F	7.18E-01	F	U	03/11/2004	GFP
TRA18601RH	TRA-06	479.6	Ruthenium-106	-9.03E+00	3.15E+01	F	1.12E+02	F	U	03/11/2004	LSC
TRA18601RH	TRA-06	479.6	Silver-108m	-2.65E+00	3.30E+00	F	7.62E+01	F	U	03/11/2004	GMS
TRA18601RH	TRA-06	479.6	Silver-110m	-1.10E+00	4.34E+00	F	2.20E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Strontium-90	2.72E-01	1.85E-01	F	3.13E+02	F	U	03/11/2004	GMS
TRA18601RH	TRA-06	479.6	Tritium	2.40E+03	1.71E+02	F	2.56E+01	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Uranium-235	2.37E+01	5.56E+00	F	7.58E+00	F	U	03/11/2004	PCI/L
TRA18601RH	TRA-06	479.6	Zinc-65	7.58E+00	5.56E+00	F	2.56E+01	F	U	03/11/2004	PCI/L

TRA18601RH	Zirconium-95	5.52E+00	GMS	03/11/2004
TRA18801RH	Americium-241	6.19E+00	GMS	03/16/2004
TRA18801RH	Antimony-125	-1.11E+01	GMS	03/16/2004
TRA18801RH	Cerium-144	-3.31E+00	GMS	03/16/2004
TRA18801RH	Cesium-134	-7.55E+00	GMS	03/16/2004
TRA18801RH	Cesium-137	-2.32E-01	GMS	03/16/2004
TRA18801RH	Cobalt-58	3.73E-01	GMS	03/16/2004
TRA18801RH	Europium-152	1.60E+00	GMS	03/16/2004
TRA18801RH	Europium-154	-1.24E+00	GMS	03/16/2004
TRA18801RH	Europium-155	-5.60E-01	GMS	03/16/2004
TRA18801RH	Manganese-54	8.73E+00	GMS	03/16/2004
TRA18801RH	Niobium-95	4.74E+00	GMS	03/16/2004
TRA18801RH	Radium-226	7.56E+00	GMS	03/16/2004
TRA18801RH	Ruthenium-103	4.58E+00	GMS	03/16/2004
TRA18801RH	Ruthenium-106	3.82E-02	GMS	03/16/2004
TRA18801RH	Silver-108m	1.86E+00	GMS	03/16/2004
TRA18801RH	Uranium-235	1.80E+00	GMS	03/16/2004
TRA18801RH	Zinc-65	1.78E+00	GMS	03/16/2004
TRA18801RH	Zirconium-95	9.85E+00	GMS	03/16/2004
TRA18801RH	Zirconium-95	-2.10E+00	GMS	03/16/2004
TRA18801RH	Zirconium-95	4.11E+01	GMS	03/16/2004
TRA18801RH	Zirconium-95	-5.37E-02	GMS	03/16/2004
TRA18801RH	Zirconium-95	1.66E+00	GMS	03/16/2004
TRA18801RH	Zirconium-95	-5.47E+00	GMS	03/16/2004
TRA18801RH	Zirconium-95	-7.21E+00	GMS	03/16/2004
TRA18801RH	Zirconium-95	5.27E-01	GMS	03/16/2004
TRA18801RH	Tritium	4.45E+03	LSC	03/16/2004
TRA18801RH	Strontium-90	2.72E-01	GFP	03/16/2004
TRA10601LL	Chromium	33.1	GFP	03/25/2004
TRA188015C	Chromium	40.2	GFP	03/16/2004
TRA18801CU	Chromium	31	E200.7	03/16/2004
TRA18901CU	Chromium	16.7	E200.7	03/10/2004
TRA10701LL	Chromium	15.6	E200.7	03/10/2004
TRA18901R8	Chromium	15.5	E200.7	03/10/2004
TRA18901RH	Tritium	1.91E+03	SW6010B	03/10/2004
TRA18901RH	Strontium-90	-1.77E-01	GFP	03/10/2004
TRA18901RH	Americium-241	1.60E+01	GFP	03/10/2004
TRA18901RH	Antimony-125	-3.86E+00	GMS	03/10/2004
TRA18901RH	Cerium-144	-1.71E+01	GMS	03/10/2004
TRA18901RH	Cesium-134	6.65E-01	GMS	03/10/2004
TRA18901RH	Cesium-137	-2.75E+00	GMS	03/10/2004
TRA18901RH	Cobalt-58	3.88E+00	GMS	03/10/2004
TRA18901RH	Cobalt-60	-5.17E-01	GMS	03/10/2004
TRA18901RH	Europium-152	1.76E+00	GMS	03/10/2004
TRA18901RH	Europium-154	-1.58E+00	GMS	03/10/2004
TRA18901RH	Manganese-54	3.78E+00	GMS	03/10/2004
TRA18901RH	Niobium-95	6.41E+00	GMS	03/10/2004
TRA18901RH	Radium-226	9.28E+00	GMS	03/10/2004
TRA18901RH	Ruthenium-103	5.12E+00	GMS	03/10/2004
TRA18901RH	Silver-110m	-2.61E+00	GMS	03/10/2004
TRA18901RH	Uranium-235	1.83E+00	GMS	03/10/2004
TRA18901RH	Zinc-65	6.56E-01	GMS	03/10/2004
TRA18901RH	Zirconium-95	3.03E-01	GMS	03/10/2004
TRA18901RH	Zirconium-95	9.28E+00	GMS	03/10/2004
TRA18901RH	Zirconium-95	-1.93E+00	GMS	03/10/2004
TRA18901RH	Zirconium-95	1.64E+01	GMS	03/10/2004
TRA18901RH	Zirconium-95	-4.74E-01	GMS	03/10/2004
TRA18901RH	Zirconium-95	1.73E+00	GMS	03/10/2004
TRA18901RH	Zirconium-95	1.33E+01	GMS	03/10/2004
TRA18901RH	Zirconium-95	7.18E+00	GMS	03/10/2004
TRA18901RH	Zirconium-95	1.99E+00	GMS	03/10/2004
TRA19001RH	Zirconium-95	3.05E+00	GMS	03/11/2004
TRA19001RH	Americium-241	-8.26E+00	GMS	03/11/2004

TRA19001RH	USGS-065	Antimony-125	-7.52E-01	4.53E+00	F
TRA19001RH	Cerium-144	2.46E+00	1.09E+01	GMS	3.67E+01
TRA19001RH	Cesium-134	3.65E+00	1.78E+00	GMS	7.02E+00
TRA19001RH	Cesium-137	1.29E+01	4.92E+00	GMS	6.15E+00
TRA19001CU	USGS-065	Chromium	109	T	
TRA190015C	USGS-065	Chromium	107	F	
TRA19001RH	USGS-065	Cobalt-58	3.03E+00	1.83E+00	F
TRA19001RH	USGS-065	Cobalt-60	3.04E-02	1.81E+00	F
TRA19001RH	USGS-065	Europium-152	1.01E+01	4.58E+00	F
TRA19001RH	USGS-065	Europium-154	-4.58E+00	4.89E+00	F
TRA19001RH	USGS-065	Europium-155	-4.51E-01	5.50E+00	F
TRA19001RH	USGS-065	Manganese-54	1.23E-01	1.76E+00	F
TRA19001RH	USGS-065	Niobium-95	2.57E+00	2.01E+00	F
TRA19001RH	USGS-065	Radium-226	6.41E+00	8.71E+00	F
TRA19001RH	USGS-065	Ruthenium-103	-6.75E-01	1.88E+00	F
TRA19001RH	USGS-065	Ruthenium-106	-1.60E+01	1.53E+01	F
TRA19001RH	USGS-065	Silver-108m	1.16E+00	1.72E+00	F
TRA19001RH	USGS-065	Silver-110m	7.09E-01	1.66E+00	F
TRA19001RH	USGS-065	Strontrium-90	1.27E-01	1.44E-01	F
TRA19001R8	USGS-065	Tritium	8.61E+03	2.98E+02	F
TRA19001RH	USGS-065	Uranium-235	7.03E+00	1.58E+01	F
TRA19001RH	USGS-065	Zinc-65	3.90E+00	3.34E+00	F
TRA19001RH	USGS-065	Zirconium-95	-1.79E+00	3.10E+00	F
TRA18501RH	HWY-3	Americium-241	-1.72E+01	2.12E+01	F
TRA18501RH	HWY-3	Antimony-125	1.66E+00	5.85E+00	F
TRA18501RH	HWY-3	Cerium-144	2.29E+00	1.58E+01	F
TRA18501RH	HWY-3	Cesium-134	-3.73E+00	2.80E+00	F
TRA18501RH	HWY-3	Cesium-137	5.07E+00	2.78E+00	F
TRA18501CU	HWY-3	Chromium	1.43	T	
TRA185015C	HWY-3	Chromium	1.43	F	
TRA18501RH	HWY-3	Cobalt-58	4.35E-01	2.71E+00	F
TRA18501RH	HWY-3	Cobalt-60	5.03E+00	2.18E+00	F
TRA18501RH	HWY-3	Europium-152	7.58E+00	6.95E+00	F
TRA18501RH	HWY-3	Europium-154	-1.05E+00	6.45E+00	F
TRA18501RH	HWY-3	Europium-155	-1.23E+01	8.44E+00	F
TRA18501RH	HWY-3	Manganese-54	-5.19E-01	2.43E+00	F
TRA18501RH	HWY-3	Niobium-95	-1.32E+00	2.55E+00	F
TRA18501RH	HWY-3	Radium-226	6.22E+00	7.23E+00	F
TRA18501RH	HWY-3	Ruthenium-103	-6.26E-01	2.82E+00	F
TRA18501RH	HWY-3	Ruthenium-106	-2.09E+00	2.04E+01	F
TRA18501RH	HWY-3	Silver-108m	-4.33E-01	2.31E+00	F
TRA18501RH	HWY-3	Silver-110m	-4.02E+00	2.25E+00	F
TRA18501RH	HWY-3	Strontrium-90	1.71E-01	1.60E-01	F
TRA18501R8	HWY-3	Tritium	1.69E+02	9.63E+01	F
TRA18501RH	HWY-3	Uranium-235	1.03E+01	1.48E+01	F
TRA18501RH	HWY-3	Zinc-65	-3.14E+00	5.51E+00	F
TRA18501RH	HWY-3	Zirconium-95	1.02E+01	3.99E+00	F
TRA17801RH	PW-11	Americium-241	3.26E+01	2.04E+01	F
TRA17801RH	PW-11	Antimony-125	-1.72E-01	5.73E+00	F
TRA17801RH	PW-11	Cerium-144	3.64E+00	1.42E+01	F
TRA17801RH	PW-11	Cesium-134	1.02E+00	2.44E+00	F
TRA17801RH	PW-11	Cesium-137	6.41E+00	2.77E+00	F

TRA17801RH	PW-11	109.75	Cobalt-58	-6.86E+00	2.91E+00	GMS	8.58E+00
TRA17801RH	PW-11	109.75	Europium-152	4.61E+00	2.87E+00	GMS	1.28E+01
TRA17801RH	PW-11	109.75	Europium-154	4.32E+00	7.18E+00	GMS	2.59E+01
TRA17801RH	PW-11	109.75	Europium-155	-7.70E+00	6.43E+00	GMS	2.25E+01
TRA17801RH	PW-11	109.75	Manganese-54	4.55E-01	7.55E+00	GMS	2.76E+01
TRA17801RH	PW-11	109.75	Niobium-95	-2.69E+00	2.50E+00	GMS	8.43E+00
TRA17801RH	PW-11	109.75	Radium-226	-1.46E+00	2.76E+00	GMS	9.93E+00
TRA17801RH	PW-11	109.75	Ruthenium-103	1.07E+01	4.98E+00	GMS	1.97E+01
TRA17801RH	PW-11	109.75	Ruthenium-106	-1.25E-01	2.96E+00	GMS	1.10E+01
TRA17801RH	PW-11	109.75	Silver-108m	5.38E+01	2.61E+01	GMS	7.90E+01
TRA17801RH	PW-11	109.75	Silver-110m	1.65E-01	2.05E+00	GMS	7.77E+00
TRA17801RH	PW-11	109.75	Uranium-235	-2.26E+00	2.40E+00	GMS	8.34E+00
TRA17801RH	PW-11	109.75	Zinc-65	1.50E+01	1.63E+01	GMS	5.45E+01
TRA17801RH	PW-11	109.75	Zirconium-95	-1.02E+01	5.62E+00	GMS	1.84E+01
TRA17801RH	PW-11	109.75	Strontium-90	5.67E+00	4.68E+00	GMS	1.90E+01
TRA17801RH	PW-11	109.75	Tritium	9.75E-01	2.14E-01	GFP	6.15E-01
TRA17801R8	PW-11	109.75	Chromium	3.77E+04	6.43E+02	LSC	2.97E+02
TRA17801CU	PW-11	109.75	Chromium	31.1	UG/L	03/08/2004	E200.7
TRA178015C	PW-11	109.75	Chromium	32.7	UG/L	03/08/2004	E200.7
TRA17801LL	PW-11	109.75	Chromium	30.8	UG/L	03/08/2004	SW6010B
TRA17901LL	PW-12	85.4	Chromium	5.79	UG/L	03/17/2004	SW6010B
TRA179015C	PW-12	85.4	Chromium	19.1	UG/L	03/17/2004	E200.7
TRA17901CU	PW-12	85.4	Chromium	3.66	UG/L	03/17/2004	E200.7
TRA17901RH	PW-12	85.4	Strontium-90	6.77E+01	8.62E+00	GFP	6.90E-01
TRA17901RH	PW-12	85.4	Tritium	1.61E+03	1.46E+02	LSC	3.05E+02
TRA17901R8	PW-12	85.4	Americium-241	1.51E+01	1.37E+01	GMS	4.81E+01
TRA17901RH	PW-12	85.4	Antimony-125	-7.03E+00	5.79E+00	GMS	1.94E+01
TRA17901RH	PW-12	85.4	Cerium-144	1.85E+00	1.37E+01	GMS	4.59E+01
TRA17901RH	PW-12	85.4	Cesium-134	5.65E-02	2.36E+00	GMS	8.33E+00
TRA17901RH	PW-12	85.4	Cesium-137	-9.45E-01	2.17E+00	GMS	7.47E+00
TRA17901RH	PW-12	85.4	Cobalt-58	-1.15E+00	2.20E+00	GMS	7.90E+00
TRA17901RH	PW-12	85.4	Cobalt-60	5.27E+01	6.03E+00	GMS	9.59E+00
TRA17901RH	PW-12	85.4	Strontium-90	-9.69E-01	5.98E+00	GMS	2.10E+01
TRA17901RH	PW-12	85.4	Europium-152	-9.85E+00	5.89E+00	GMS	1.90E+01
TRA17901RH	PW-12	85.4	Europium-154	7.42E+00	7.67E+00	GMS	2.64E+01
TRA17901RH	PW-12	85.4	Europium-155	PC/L	03/17/2004	GMS	7.67E+00
TRA17901RH	PW-12	85.4	Manganese-54	PC/L	03/17/2004	GMS	7.31E+00
TRA17901RH	PW-12	85.4	Niobium-95	PC/L	03/17/2004	GMS	8.38E+00
TRA17901RH	PW-12	85.4	Radium-226	3.97E+01	9.06E+00	GMS	1.38E+01
TRA17901RH	PW-12	85.4	Ruthenium-103	-1.98E+00	2.27E+00	GMS	7.67E+00
TRA17901RH	PW-12	85.4	Ruthenium-106	-9.62E+00	1.91E+01	GMS	6.54E+01
TRA17901RH	PW-12	85.4	Silver-108m	1.26E+00	1.89E+00	GMS	6.90E+00
TRA17901RH	PW-12	85.4	Silver-110m	1.50E-02	2.03E+00	GMS	7.15E+00
TRA17901RH	PW-12	85.4	Uranium-235	2.38E+00	1.46E+01	GMS	4.87E+01
TRA17901RH	PW-12	85.4	Zinc-65	4.35E+00	5.90E+00	GMS	1.99E+01
TRA17901RH	PW-12	85.4	Zirconium-95	2.71E+00	3.61E+00	GMS	1.33E+01
TRA18201RH	USGS-054	66.01	Americium-241	2.76E+00	1.24E+01	GMS	3.86E+01
TRA18202RH	USGS-054	66.01	Americium-241	1.75E+01	1.18E+01	GMS	3.81E+01
TRA18201RH	USGS-054	66.01	Antimony-125	-5.11E-01	4.72E+00	GMS	1.61E+01
TRA18202RH	USGS-054	66.01	Antimony-125	-2.04E+00	5.72E+00	GMS	1.91E+01
TRA18201RH	USGS-054	66.01	Cerium-144	1.49E+01	1.10E+01	GMS	4.03E+01
TRA18202RH	USGS-054	66.01	Cerium-144	-8.25E-01	1.30E+01	GMS	4.58E+01
TRA18201RH	USGS-054	66.01	Cesium-134	1.77E+00	1.63E+00	GMS	7.18E+00

USGS-054	Cesium-134	-7.68E-01	2.18E+00	GMS	7.69E+00
TRA18202RH	Cesium-137	-2.06E+00	2.14E+00	GMS	6.30E+00
TRA18201RH	Cesium-137	-2.43E+00	2.11E+00	GMS	7.16E+00
TRA18202RH	Cobalt-58	-9.44E-02	1.94E+00	GMS	6.97E+00
TRA18201RH	Cobalt-58	1.35E+00	2.49E+00	GMS	9.10E+00
TRA18202RH	Cobalt-60	6.51E-01	1.83E+00	GMS	7.18E+00
TRA18201RH	Cobalt-60	-1.19E+00	2.04E+00	GMS	7.40E+00
TRA18202RH	Europium-152	-9.27E+00	5.19E+00	GMS	1.64E+01
TRA18201RH	Europium-152	-4.61E+00	6.13E+00	GMS	2.03E+01
TRA18202RH	Europium-154	2.63E-01	5.09E+00	GMS	1.95E+01
TRA18201RH	Europium-154	-5.69E+00	5.04E+00	GMS	1.76E+01
TRA18202RH	Europium-154	1.34E+01	5.52E+00	GMS	2.11E+01
TRA18201RH	Europium-155	-6.58E-01	6.50E+00	GMS	2.31E+01
TRA18202RH	Europium-155	-8.51E-01	1.92E+00	GMS	6.68E+00
TRA18201RH	Manganese-54	-3.13E+00	2.09E+00	GMS	6.78E+00
TRA18202RH	Manganese-54	6.13E-01	2.35E+00	GMS	8.59E+00
TRA18201RH	Niobium-95	3.14E+00	2.50E+00	GMS	9.60E+00
TRA18202RH	Niobium-95	7.98E+00	5.30E+00	GMS	1.20E+01
TRA18201RH	Radium-226	1.60E+01	6.58E+00	GMS	1.49E+01
TRA18202RH	Radium-226	-1.87E+00	2.02E+00	GMS	7.08E+00
TRA18201RH	Ruthenium-103	2.02E+00	2.67E+00	GMS	9.90E+00
TRA18202RH	Ruthenium-103	1.86E+00	1.53E+01	GMS	5.01E+01
TRA18201RH	Ruthenium-106	1.52E+01	2.08E+01	GMS	7.67E+01
TRA18202RH	Ruthenium-106	2.61E-01	1.63E+00	GMS	6.01E+00
TRA18201RH	Silver-108m	-2.81E+00	2.04E+00	GMS	6.45E+00
TRA18202RH	Silver-108m	3.61E+00	2.34E+00	GMS	6.51E+00
TRA18201RH	Silver-110m	2.77E+00	1.91E+00	GMS	7.39E+00
TRA18202RH	Silver-110m	1.79E+01	1.58E+01	GMS	4.22E+01
TRA18201RH	Uranium-235	1.18E+01	1.35E+01	GMS	4.80E+01
TRA18202RH	Uranium-235	-9.47E+00	4.52E+00	GMS	1.46E+01
TRA18201RH	Zinc-65	2.85E+00	3.93E+00	GMS	1.56E+01
TRA18202RH	Zirconium-95	1.78E+00	2.95E+00	GMS	1.13E+01
TRA18201RH	Zirconium-95	5.57E-01	3.83E+00	GMS	1.40E+01
TRA18202RH	Chromium	5.85	B	UGL	03/08/2004 E200.7
TRA18201RH	Chromium	6.01	B	UGL	03/08/2004 E200.7
TRA18202RH	Chromium	6.01	B	UGL	03/08/2004 E200.7
TRA18201RH	Chromium	5.57	B	UGL	03/08/2004 E200.7
TRA18202RH	Chromium	5.12	B	UGL	03/08/2004 SW6010B
TRA18201RH	Strontium-90	4.86E+01	7.00E+00	GFP	7.05E-01
TRA18202RH	Strontium-90	4.86E+01	6.48E+00	GFP	7.71E-01
TRA18201RH	Tritium	2.47E+02	8.85E+01	LSC	2.86E+02
TRA18202RH	Tritium	1.22E+02	8.70E+01	LSC	2.87E+02
TRA18101RH	Tritium	3.62E+03	1.91E+02	LSC	2.88E+02
TRA18101RH	Strontium-90	4.80E+01	6.20E+00	GFP	8.48E-01
TRA18101CU	Chromium	17.6	U	UGL	03/09/2004 E200.7
TRA18101CU	Chromium	18.5	U	UGL	03/09/2004 E200.7
TRA18101LL	Chromium	16.6	U	UGL	03/09/2004 SW6010B
TRA18101RH	Americium-241	-2.93E+00	1.26E+01	GMS	4.30E+01
TRA18101RH	Antimony-125	-1.04E+01	9.45E+00	GMS	3.18E+01
TRA18101RH	Cerium-144	-3.49E+00	1.98E+01	GMS	6.64E+01
TRA18101RH	Cesium-134	-5.79E-01	3.59E+00	GMS	1.37E+01

TRA18101RH	USGS-053	70.03	Cesium-137	2.95E+01	5.92E+00	GMS	2.43E+01
TRA18101RH	USGS-053	70.03	Cobalt-58	-5.53E+00	3.47E+00	GMS	1.16E+01
TRA18101RH	USGS-053	70.03	Cobalt-60	1.40E-01	4.35E+00	GMS	1.47E+01
TRA18101RH	USGS-053	70.03	Europium-152	-2.09E+01	8.91E+00	GMS	2.81E+01
TRA18101RH	USGS-053	70.03	Europium-154	9.95E+00	1.03E+01	GMS	4.05E+01
TRA18101RH	USGS-053	70.03	Europium-155	-1.35E+01	1.12E+01	GMS	3.65E+01
TRA18101RH	USGS-053	70.03	Manganese-54	3.76E-01	3.08E+00	GMS	1.20E+01
TRA18101RH	USGS-053	70.03	Niobium-95	1.16E+00	4.28E+00	GMS	1.66E+01
TRA18101RH	USGS-053	70.03	Radium-226	7.98E+00	7.74E+00	GMS	2.91E+01
TRA18101RH	USGS-053	70.03	Ruthenium-103	-2.86E+00	4.35E+00	GMS	1.50E+01
TRA18101RH	USGS-053	70.03	Ruthenium-106	3.39E+01	2.93E+01	GMS	1.16E+02
TRA18101RH	USGS-053	70.03	Silver-108m	-8.15E+00	8.57E+00	GMS	2.48E+01
TRA18101RH	USGS-053	70.03	Zinc-65	5.93E+00	8.07E+00	GMS	1.08E+01
TRA18101RH	USGS-053	70.03	Zirconium-95	-2.48E+01	5.41E+00	GMS	1.31E+01
TRA18101RH	USGS-053	70.03	Americium-241	9.02E-01	2.40E+01	GMS	7.19E+01
TRA18101RH	USGS-053	70.03	Uranium-235	3.20E+00	4.71E+00	GMS	1.57E+01
TRA18101RH	USGS-053	70.03	Zinc-65	-7.88E+00	9.72E+00	GMS	3.28E+01
TRA18101RH	USGS-053	70.03	Cerium-144	2.82E-01	2.51E+00	GMS	2.25E+01
TRA18101RH	USGS-055	62.1	Cesium-134	-4.44E-01	1.87E+00	GMS	1.31E+00
TRA18301RH	USGS-055	62.1	Cesium-137	7.88E-01	1.95E+00	GMS	7.44E+00
TRA18301RH	USGS-055	62.1	Cobalt-58	5.08E+00	1.82E+00	GMS	8.30E+00
TRA18301RH	USGS-055	62.1	Cobalt-60	-5.46E+00	4.54E+00	GMS	1.56E+01
TRA18301RH	USGS-055	62.1	Europium-152	-5.49E+00	4.92E+00	GMS	1.67E+01
TRA18301RH	USGS-055	62.1	Europium-154	-4.30E+00	5.03E+00	GMS	1.72E+01
TRA18301RH	USGS-055	62.1	Europium-155	1.74E+00	1.55E+00	GMS	6.22E+00
TRA18301RH	USGS-055	62.1	Manganese-54	1.39E+00	1.85E+00	GMS	7.06E+00
TRA18301RH	USGS-055	62.1	Niobium-95	6.91E+00	3.70E+00	GMS	1.41E+01
TRA18301RH	USGS-055	62.1	Radium-226	2.60E+00	1.99E+00	GMS	7.57E+00
TRA18301RH	USGS-055	62.1	Ruthenium-103	-7.94E+00	1.61E+01	GMS	5.57E+01
TRA18301RH	USGS-055	62.1	Silver-108m	-4.93E-01	1.53E+00	GMS	5.44E+00
TRA18301RH	USGS-055	62.1	Silver-110m	5.22E-01	1.70E+00	GMS	6.15E+00
TRA18301RH	USGS-055	62.1	Zinc-65	-2.84E+00	1.04E+01	GMS	3.55E+01
TRA18301RH	USGS-055	62.1	Zirconium-95	-5.12E+00	4.12E+00	GMS	1.39E+01
TRA18301RH	USGS-055	62.1	Chromium	1.76E+00	3.41E+00	GMS	1.25E+01
TRA18301CU	USGS-055	62.1	Chromium	27.7		E200.7	
TRA183015C	USGS-055	62.1	Chromium	31.6		UG/L	
TRA18301LL	USGS-055	62.1	Chromium	26.7		UG/L	
TRA18301RH	USGS-055	62.1	Strontium-90	4.25E+01	5.59E+00	Sw6010B	
TRA18301RH	USGS-055	62.1	Tritium	1.30E+04	2.31E+02	GFP	6.92E-01
TRA18301RH	USGS-055	62.1	Alkalinity, Total as CaCO3	1.02		LSC	2.88E+02
TRA18301RH	EQUIP RINSATE	NA	Aluminum	56.6		E310.1	
TRA11001A1	EQUIP RINSATE	NA	Americium-241	1.69E+01	9.53E+00	PC/L	
TRA11001LL	EQUIP RINSATE	NA	Americium-241	7.99E-01	1.00E+01	MG/L	
TRA19401RH	EQUIP RINSATE	NA	Antimony	5.08		PC/L	
TRA11001RH	EQUIP RINSATE	NA	Antimony-25	1.10E+00	3.92E+00	PC/L	
TRA19401RH	EQUIP RINSATE	NA	Antimony-25	7.55E+00	4.83E+00	PC/L	
TRA11001RH	EQUIP RINSATE	NA	Arsenic	2.24		UG/L	
TRA11001LL	EQUIP RINSATE	NA	Barium	0.322		UG/L	
TRA11001BX	EQUIP RINSATE	NA	Benzene	1		UG/L	
TRA11001LL	EQUIP RINSATE	NA	Beryllium	0.158		UG/L	

TRA11001AN	EQUIP RINSATE	Boron	4.88	03/23/2004	SW6010B
TRA11001LL	EQUIP RINSATE	Bromide	0	03/23/2004	E300
TRA11001LL	EQUIP RINSATE	Cadmium	0.313	03/23/2004	SW6010B
TRA11001LL	EQUIP RINSATE	Calcium	110	03/23/2004	SW6010B
TRA19401RH	EQUIP RINSATE	Cerium-144	1.48E+01	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Cerium-144	-1.64E+01	03/23/2004	GMS
TRA19401RH	EQUIP RINSATE	Cesium-134	1.18E+01	03/23/2004	4.00E+01
TRA11001RH	EQUIP RINSATE	Cesium-134	2.74E+00	03/23/2004	6.70E+00
TRA11001RH	EQUIP RINSATE	Cesium-134	-1.13E+00	03/23/2004	6.54E+00
TRA19401RH	EQUIP RINSATE	Cesium-137	1.89E+00	03/23/2004	6.08E+00
TRA11001RH	EQUIP RINSATE	Cesium-137	2.22E+00	03/23/2004	7.35E+00
TRA11001AN	EQUIP RINSATE	Chloride	0	03/23/2004	E300
TRA11001LL	EQUIP RINSATE	Chromium	1.75	03/23/2004	SW6010B
TRA19401CU	EQUIP RINSATE	Chromium	1.43	03/23/2004	E200.7
TRA194015C	EQUIP RINSATE	Chromium	1.43	03/23/2004	E200.7
TRA110015C	EQUIP RINSATE	Chromium	1.43	03/23/2004	E200.7
TRA11001LL	EQUIP RINSATE	Cobalt	1.34	03/23/2004	SW6010B
TRA19401RH	EQUIP RINSATE	Cobalt-58	2.21E+00	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Cobalt-58	-2.64E+00	03/23/2004	GMS
TRA19401RH	EQUIP RINSATE	Cobalt-60	1.85E+00	03/23/2004	6.05E+00
TRA11001RH	EQUIP RINSATE	Cobalt-60	6.94E-01	03/23/2004	6.20E+00
TRA11001LL	EQUIP RINSATE	Copper	3.55E+00	03/23/2004	GMS
TRA11001TL	EQUIP RINSATE	Diesel Range Organics	8.48	03/23/2004	7.49E+00
TRA11001BX	EQUIP RINSATE	Ethylbenzene	0.042	03/23/2004	SW8015
TRA11001BX	EQUIP RINSATE	Ethylbenzene	1	03/23/2004	SW8260B
TRA19401RH	EQUIP RINSATE	Europium-152	-5.88E-01	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Europium-152	4.64E+00	03/23/2004	1.55E+01
TRA19401RH	EQUIP RINSATE	Europium-152	1.25E+01	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Europium-154	5.51E+00	03/23/2004	2.12E+01
TRA11001RH	EQUIP RINSATE	Europium-154	4.49E+00	03/23/2004	1.82E+01
TRA11001RH	EQUIP RINSATE	Europium-154	-2.68E-01	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Europium-155	5.15E+00	03/23/2004	1.92E+01
TRA11001RH	EQUIP RINSATE	Europium-155	6.68E+00	03/23/2004	GMS
TRA11001AN	EQUIP RINSATE	Europium-155	3.30E+00	03/23/2004	1.68E+01
TRA11001TG	EQUIP RINSATE	Fluoride	0	03/23/2004	2.18E+01
TRA11001LL	EQUIP RINSATE	Gasoline Range Organics	50	03/23/2004	E300
TRA11001LL	EQUIP RINSATE	Iron	12.6	03/23/2004	SW8015
TRA11001LL	EQUIP RINSATE	Lead	1.72	03/23/2004	SW6010B
TRA11001BX	EQUIP RINSATE	m,p-Xylenes	2	03/23/2004	SW6010B
TRA11001LL	EQUIP RINSATE	Magnesium	15.8	03/23/2004	SW6010B
TRA11001LL	EQUIP RINSATE	Manganese	0.379	03/23/2004	SW7470A
TRA19401RH	EQUIP RINSATE	Manganese-54	-1.06E+00	03/23/2004	GMS
TRA11001LL	EQUIP RINSATE	Manganese-54	-3.99E-02	03/23/2004	5.78E+00
TRA19401RH	EQUIP RINSATE	Mercury	1.80E+00	03/23/2004	6.39E+00
TRA11001LL	EQUIP RINSATE	Nickel	0.047	03/23/2004	UG/L
TRA11001LL	EQUIP RINSATE	Nickel	2.58	03/23/2004	SW6010B
TRA19401RH	EQUIP RINSATE	Niobium-95	7.27E-01	03/23/2004	GMS
TRA1001RH	EQUIP RINSATE	Niobium-95	2.05E+00	03/23/2004	7.24E+00
TRA11001N2	EQUIP RINSATE	Nitrogen, Nitrate/Nitrite	1.33E+00	03/23/2004	GMS
TRA11001BX	EQUIP RINSATE	Nitrogen, Nitrate/Nitrite	0	03/23/2004	7.07E+00
TRA11001LL	EQUIP RINSATE	o-Xylene	1	03/23/2004	E353.1
TRA11001LL	EQUIP RINSATE	Potassium	20.9	03/23/2004	SW8260B
TRA19401RH	EQUIP RINSATE	Radium-226	9.50E+00	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Radium-226	3.63E+00	03/23/2004	1.38E+01
TRA19401RH	EQUIP RINSATE	Ruthenium-103	1.48E+01	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Ruthenium-103	-9.28E-02	03/23/2004	1.57E+01
TRA19401RH	EQUIP RINSATE	Ruthenium-106	-3.73E+00	03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	Ruthenium-106	-2.25E+01	03/23/2004	6.74E+00
TRA11001RH	EQUIP RINSATE	Ruthenium-106	-9.39E+00	03/23/2004	4.43E+01
TRA11001LL	EQUIP RINSATE	Selenium	2.81	03/23/2004	5.67E+01

TRA11001LL	EQUIP RINSATE	NA	Silica	21.2	U	U	T	03/23/2004	SW6010B
TRA11001LL	EQUIP RINSATE	NA	Silver	1.01	B			03/23/2004	SW6010B
TRA11001RH	EQUIP RINSATE	NA	Silver-108m	-4.52E-01	1.47E+00			03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	NA	Silver-108m	1.54E+00	1.99E+00			03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	NA	Silver-110m	1.05E-01	1.50E+00			03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	NA	Silver-110m	-2.53E+00	2.03E+00			03/23/2004	GMS
TRA11001LL	EQUIP RINSATE	NA	Sodium	33.5	B			03/23/2004	SW6010B
TRA11001LL	EQUIP RINSATE	NA	Strontium	0.394	B			03/23/2004	SW6010B
TRA11001RH	EQUIP RINSATE	NA	Strontium-90	-6.68E-02	8.11E-02			03/23/2004	GFP
TRA11001RH	EQUIP RINSATE	NA	Strontium-90	2.73E-01	1.98E-01			03/23/2004	GFP
TRA11001AN	EQUIP RINSATE	NA	Sulfate	0				03/23/2004	E300
TRA11001LL	EQUIP RINSATE	NA	Thallium	10				03/23/2004	SW6010B
TRA11001BX	EQUIP RINSATE	NA	Toluene	1				03/23/2004	SW8260B
TRA19401R8	EQUIP RINSATE	NA	Tritium	-4.35E+01	9.43E+01			03/23/2004	LSC
TRA11001R8	EQUIP RINSATE	NA	Tritium	7.62E+00	9.59E+01			03/23/2004	LSC
TRA11001LL	EQUIP RINSATE	NA	Uranium	15.6				03/23/2004	SW6010B
TRA19401RH	EQUIP RINSATE	NA	Uranium-235	-1.20E+01	9.03E+00			03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	NA	Uranium-235	1.15E+01	1.23E+01			03/23/2004	GMS
TRA11001LL	EQUIP RINSATE	NA	Vanadium	0.606				03/23/2004	SW6010B
TRA11001BX	EQUIP RINSATE	NA	Xylene (Total)	1				03/23/2004	SW8260B
TRA11001LL	EQUIP RINSATE	NA	Zinc	9.89	B			03/23/2004	SW6010B
TRA19401RH	EQUIP RINSATE	NA	Zinc-65	-1.43E+00	3.62E+00			03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	NA	Zinc-65	8.12E+00	3.72E+00			03/23/2004	GMS
TRA19401RH	EQUIP RINSATE	NA	Zirconium-95	-1.36E-01	2.90E+00			03/23/2004	GMS
TRA11001RH	EQUIP RINSATE	NA	Zirconium-95	9.56E-01	2.96E+00			03/23/2004	GMS
TRA10901A1	FIELD BLANK	NA	Alkalinity, Total as CaCO3	3.06	J			03/09/2004	E310.1
TRA10901A1	FIELD BLANK	NA	Aluminum	56.9	B			03/09/2004	SW6010B
TRA10901LL	FIELD BLANK	NA	Americium-241	7.36E+00	7.67E+00			03/16/2004	GMS
TRA19401RH	FIELD BLANK	NA	Americium-241	4.16E+00	1.52E+01			03/16/2004	GMS
TRA11001RH	FIELD BLANK	NA	Antimony	5.08				03/09/2004	SW6010B
TRA10901LL	FIELD BLANK	NA	Antimony-125	1.47E+00	4.09E+00			03/16/2004	GMS
TRA19301RH	FIELD BLANK	NA	Antimony-125	-4.83E+00	5.53E+00			03/09/2004	GMS
TRA10901RH	FIELD BLANK	NA	Arsenic	2.24				03/09/2004	SW6010B
TRA10901LL	FIELD BLANK	NA	Barium	0.222				03/09/2004	SW6010B
TRA19301RH	FIELD BLANK	NA	Benzene	1				03/09/2004	SW8260B
TRA10901RH	FIELD BLANK	NA	Beryllium	0.158				03/09/2004	SW6010B
TRA10901LL	FIELD BLANK	NA	Boron	4.88				03/09/2004	SW6010B
TRA10901LL	FIELD BLANK	NA	Bromide	0				03/09/2004	E300
TRA10901AN	FIELD BLANK	NA	Cadmium	0.313				03/09/2004	SW6010B
TRA10901LL	FIELD BLANK	NA	Calcium	161	B			03/09/2004	SW6010B
TRA19301RH	FIELD BLANK	NA	Cerium-144	4.02E+00	9.97E+00			03/16/2004	GMS
TRA10901RH	FIELD BLANK	NA	Cerium-144	-5.11E+00	1.43E+01			03/09/2004	GMS
TRA19301RH	FIELD BLANK	NA	Cesium-134	4.25E-02	1.59E+00			03/16/2004	GMS
TRA10901RH	FIELD BLANK	NA	Cesium-134	1.30E+00	2.13E+00			03/09/2004	GMS
TRA19301RH	FIELD BLANK	NA	Cesium-137	5.46E-01	1.67E+00			03/16/2004	GMS
TRA10901RH	FIELD BLANK	NA	Cesium-137	2.85E+00	2.18E+00			03/09/2004	GMS
TRA10901AN	FIELD BLANK	NA	Chloride	0				03/09/2004	E300
TRA10901LL	FIELD BLANK	NA	Chromium	0.563	B			03/09/2004	SW6010B
TRA193015C	FIELD BLANK	NA	Chromium	1.43				03/16/2004	E200.7
TRA19301CU	FIELD BLANK	NA	Chromium	1.43				03/16/2004	E200.7
TRA109015C	FIELD BLANK	NA	Chromium	1.61				03/09/2004	E200.7
TRA10901LL	FIELD BLANK	NA	Cobalt	0.541				03/09/2004	UG/L

Field Sample Number	Location	Depth	Compound	Sample Result		Sample Error	Result Qualifier	Validation Flag	Sample Units	Date Sample Collected	Method Code	MDA	Filtered Metal Sample
				4.73E+00	4.05E+00								
TRA05701RH	PW-11	134.5	Americium-241	4.73E+00	4.05E+00	5.65E+00	U	U	PCI/L	10/28/2003	GMS	1.48E+01	F
TRA05801RH	PW-12	133	Americium-241	1.24E+00	1.24E+00	8.41E+00	U	U	PCI/L	10/29/2003	GMS	1.87E+01	F
TRA06001RH	USGS-053	90	Americium-241	1.06E+01	1.06E+01	8.41E+00	U	U	PCI/L	10/29/2003	GMS	2.73E+01	F
TRA06101RH	USGS-054	91	Americium-241	-8.74E+00	7.78E+00	7.78E+00	U	U	PCI/L	10/23/2003	GMS	2.48E+01	F
TRA06102RH	USGS-054	91	Americium-241	-3.01E+00	5.68E+00	5.68E+00	U	U	PCI/L	10/23/2003	GMS	1.84E+01	F
TRA06201RH	USGS-055	81	Americium-241	-1.48E-01	6.35E+00	6.35E+00	U	U	PCI/L	10/22/2003	GMS	2.03E+01	F
TRA06401RH	HWY-3	750	Americium-241	1.58E+01	7.57E+00	7.57E+00	U	U	PCI/L	10/20/2003	GMS	2.53E+01	F
TRA06501RH	TRA-06	562	Americium-241	-3.14E+00	7.11E+00	7.11E+00	U	U	PCI/L	10/20/2003	GMS	2.33E+01	F
TRA06601RH	TRA-07	501	Americium-241	-1.80E+00	5.44E+00	5.44E+00	U	U	PCI/L	10/22/2003	GMS	1.84E+01	F
TRA06701RH	TRA-08	501.5	Americium-241	9.15E+00	8.58E+00	8.58E+00	U	U	PCI/L	10/23/2003	GMS	2.08E+01	F
TRA06801RH	USGS-058	503	Americium-241	-1.15E+00	1.43E+00	1.43E+00	U	U	PCI/L	10/23/2003	GMS	4.65E+00	F
TRA06901RH	USGS-065	498	Americium-241	-4.88E+00	6.00E+00	6.00E+00	U	U	PCI/L	10/27/2003	GMS	2.03E+01	F
TRA07001RH	MIDDLE-1823 FIELD BLANK	729.7	Americium-241	1.32E+00	2.20E+00	2.20E+00	U	U	PCI/L	10/28/2003	GMS	7.38E+00	F
TRA07201RH	EQUIP RINSATE	NA	Americium-241	5.45E+00	5.61E+00	5.61E+00	U	U	PCI/L	10/20/2003	GMS	1.83E+01	F
TRA07301RH	USGS-068	NA	Americium-241	-3.56E+00	5.75E+00	5.75E+00	U	U	PCI/L	10/29/2003	GMS	1.82E+01	F
TRA07401RH	PW-11	80.3	Americium-241	2.97E+00	5.27E+00	5.27E+00	U	U	PCI/L	10/29/2003	GMS	1.64E+01	F
TRA05701RH	PW-12	134.5	Antimony-125	8.46E+00	3.65E+00	3.65E+00	U	U	PCI/L	10/28/2003	GMS	7.57E+00	F
TRA05801RH	USGS-053	133	Antimony-125	2.13E-01	2.60E+00	2.60E+00	U	U	PCI/L	10/29/2003	GMS	9.47E+00	F
TRA06001RH	USGS-054	90	Antimony-125	2.57E+00	2.40E+00	2.40E+00	U	U	PCI/L	10/29/2003	GMS	8.63E+00	F
TRA06101RH	USGS-054	91	Antimony-125	4.39E+00	2.39E+00	2.39E+00	U	U	PCI/L	10/23/2003	GMS	8.90E+00	F
TRA06102RH	USGS-055	81	Antimony-125	6.06E-01	1.80E+00	1.80E+00	U	U	PCI/L	10/23/2003	GMS	6.07E+00	F
TRA06201RH	HWY-3	750	Antimony-125	-2.73E-01	2.65E+00	2.65E+00	U	U	PCI/L	10/22/2003	GMS	9.44E+00	F
TRA06401RH	TRA-06	562	Antimony-125	8.76E-01	2.41E+00	2.41E+00	U	U	PCI/L	10/20/2003	GMS	8.51E+00	F
TRA06501RH	TRA-07	501	Antimony-125	8.93E-01	2.45E+00	2.45E+00	U	U	PCI/L	10/20/2003	GMS	8.62E+00	F
TRA06601RH	TRA-08	501.5	Antimony-125	-6.69E-01	2.49E+00	2.49E+00	U	U	PCI/L	10/22/2003	GMS	8.73E+00	F
TRA06801RH	USGS-058	503	Antimony-125	2.18E+00	2.27E+00	2.27E+00	U	U	PCI/L	10/23/2003	GMS	7.94E+00	F
TRA06901RH	MIDDLE-1823 FIELD BLANK	498	Antimony-125	-6.59E-01	2.03E+00	2.03E+00	U	U	PCI/L	10/27/2003	GMS	6.70E+00	F
TRA07001RH	EQUIP RINSATE	NA	Antimony-125	1.91E+00	2.54E+00	2.54E+00	U	U	PCI/L	10/28/2003	GMS	9.10E+00	F
TRA07201RH	USGS-068	80.3	Antimony-125	3.13E+00	3.66E+00	3.66E+00	U	U	PCI/L	10/20/2003	GMS	8.19E+00	F
TRA07301RH	PW-11	134.5	Cerium-144	-5.74E+00	2.52E+00	2.52E+00	U	U	PCI/L	10/29/2003	GMS	8.80E+00	F
TRA07401RH	PW-12	133	Cerium-144	2.87E-01	2.67E+00	2.67E+00	U	U	PCI/L	10/29/2003	GMS	7.01E+00	F
TRA06001RH	USGS-053	90	Cerium-144	8.48E-01	2.01E+00	2.01E+00	U	U	PCI/L	10/29/2003	GMS	1.74E+01	F
TRA06101RH	USGS-054	91	Cerium-144	-1.81E+00	5.05E+00	5.05E+00	U	U	PCI/L	10/23/2003	GMS	2.27E+01	F
TRA06102RH	USGS-054	91	Cerium-144	9.66E+00	4.26E+00	4.26E+00	U	U	PCI/L	10/29/2003	GMS	2.08E+01	F
TRA06201RH	USGS-055	81	Cerium-144	-6.22E+00	7.43E+00	7.43E+00	U	U	PCI/L	10/29/2003	GMS	2.24E+01	F
TRA06401RH	HWY-3	750	Cerium-144	1.73E+01	9.78E+00	9.78E+00	U	U	PCI/L	10/23/2003	GMS	1.74E+01	F
TRA06501RH	TRA-06	562	Cerium-144	4.73E-01	6.29E+00	6.29E+00	U	U	PCI/L	10/28/2003	GMS	1.54E+01	F
TRA06601RH	TRA-07	501	Cerium-144	-5.74E+00	2.52E+00	2.52E+00	U	U	PCI/L	10/22/2003	GMS	2.42E+01	F
TRA06701RH	TRA-08	501.5	Cerium-144	2.87E+00	2.67E+00	2.67E+00	U	U	PCI/L	10/23/2003	GMS	2.06E+01	F
TRA06801RH	USGS-058	503	Cerium-144	8.48E-01	2.01E+00	2.01E+00	U	U	PCI/L	10/23/2003	GMS	1.58E+01	F
TRA06901RH	USGS-065	498	Cerium-144	4.73E-01	6.57E+00	6.57E+00	U	U	PCI/L	10/20/2003	GMS	2.37E+01	F
TRA07001RH	MIDDLE-1823 FIELD BLANK	729.7	Cerium-144	1.59E+00	6.62E+00	6.62E+00	U	U	PCI/L	10/28/2003	GMS	2.41E+01	F
TRA07201RH	EQUIP RINSATE	NA	Cerium-144	-3.95E+00	7.38E+00	7.38E+00	U	U	PCI/L	10/20/2003	GMS	2.41E+01	F
TRA07301RH	USGS-068	80.3	Cerium-144	4.72E+00	6.86E+00	6.86E+00	U	U	PCI/L	10/29/2003	GMS	2.41E+01	F
TRA07401RH	PW-11	134.5	Cerium-144	4.78E+00	6.77E+00	6.77E+00	U	U	PCI/L	10/20/2003	GMS	2.41E+01	F
TRA05701RH	USGS-068	80.3	Cerium-144	4.23E+00	6.70E+00	6.70E+00	U	U	PCI/L	10/29/2003	GMS	2.37E+01	F
TRA06801RH	MIDDLE-1823 FIELD BLANK	729.7	Cerium-144	-1.04E+00	6.98E-01	6.98E-01	U	U	PCI/L	10/29/2003	GMS	2.04E+01	F
TRA06901RH	EQUIP RINSATE	NA	Cerium-144	1.31E+01	6.77E+00	6.77E+00	U	U	PCI/L	10/20/2003	GMS	2.41E+01	F
TRA07001RH	USGS-068	80.3	Cerium-144	4.23E+00	6.70E+00	6.70E+00	U	U	PCI/L	10/29/2003	GMS	2.37E+01	F
TRA07201RH	TRA-0												

TRA-06	562	Chromium	6.29	E200.7
USGS-055	81	Chromium	18.7	E200.7
TRA-07	501	Chromium	150	E200.7
TRA-08	501.5	Chromium	26.9	E200.7
USGS-058	503	Chromium	13.4	E200.7
HWY-3	750	Chromium	0.33	E200.7
FIELD BLANK	NA	Chromium	0.33	E200.7
PW-11	134.5	Chromium	34.6	E200.7
USGS-053	90	Chromium	43.5	E200.7
USGS-065	498	Chromium	103	E200.7
USGS-068	80.3	Chromium	22	E200.7
PW-11	134.5	Cobalt-58	7.28E-01	8.55E-01
PW-12	133	Cobalt-58	-2.79E+00	1.33E+00
USGS-053	90	Cobalt-58	8.59E-01	8.40E-01
USGS-054	91	Cobalt-58	-1.42E+00	9.01E-01
USGS-054	91	Cobalt-58	-7.48E-01	7.41E-01
USGS-055	81	Cobalt-58	-4.86E-01	1.07E+00
HWY-3	750	Cobalt-58	-2.46E+00	1.06E+00
TRA-06	562	Cobalt-58	-2.15E+00	1.13E+00
TRA-07	501	Cobalt-58	7.97E-01	1.12E+00
TRA-08	501.5	Cobalt-58	-4.79E-01	8.54E-01
USGS-058	503	Cobalt-58	1.46E+00	9.38E-01
USGS-065	498	Cobalt-58	8.91E-01	1.07E+00
MIDDLE-1823	729.7	Cobalt-58	-1.61E+00	1.94E+00
FIELD BLANK	NA	Cobalt-58	-1.45E+00	9.97E-01
EQUIP RINSATE	NA	Cobalt-58	2.28E+00	9.75E-01
USGS-068	80.3	Cobalt-58	1.20E+00	8.35E-01
PW-11	134.5	Cobalt-60	2.54E+00	9.51E-01
PW-12	133	Cobalt-60	6.22E+01	4.23E+00
USGS-053	90	Cobalt-60	1.46E+00	9.93E-01
USGS-054	91	Cobalt-60	-4.77E-01	1.05E+00
USGS-054	91	Cobalt-60	4.86E-01	6.88E-01
USGS-055	81	Cobalt-60	8.42E-01	1.15E+00
HWY-3	750	Cobalt-60	-3.20E+00	1.00E+00
TRA-06	562	Cobalt-60	-1.13E+00	9.01E-01
TRA-07	501	Cobalt-60	1.64E+00	9.56E-01
TRA-08	501.5	Cobalt-60	-4.21E-01	7.19E-01
USGS-058	503	Cobalt-60	5.51E-01	7.44E-01
USGS-065	498	Cobalt-60	2.98E-01	1.16E+00
MIDDLE-1823	729.7	Cobalt-60	9.93E-01	1.47E+00
FIELD BLANK	NA	Cobalt-60	-7.95E-01	8.78E-01
EQUIP RINSATE	NA	Cobalt-60	4.91E-02	1.04E+00
USGS-068	80.3	Cobalt-60	-5.00E-01	7.23E-01
PW-11	134.5	Europium-152	-3.02E-02	2.24E+00
PW-12	133	Europium-152	-1.01E+00	2.93E+00
USGS-053	90	Europium-152	9.70E+00	4.03E+00
USGS-054	91	Europium-152	9.30E-01	2.58E+00
HWY-3	750	Europium-152	-1.04E+00	1.84E+00
TRA-06	562	Europium-152	-4.13E-01	2.80E+00
TRA-07	501	Europium-152	4.76E+00	2.56E+00
TRA-06	562	Europium-152	5.94E+00	2.58E+00
TRA-07	501	Europium-152	2.37E+00	2.78E+00

TRA06701RH	TRA06801RH	USGS-058	503	Europium-152	8.38E-01	2.38E+00	F	PCI/L	10/23/2003	GMS
TRA06901RH	TRA07001RH	USGS-065	498	Europium-152	-1.05E+00	2.06E+00	F	PCI/L	10/27/2003	GMS
MIDDLE-1823	FIELD BLANK	EQUIP RINSATE	729.7	Europium-152	-1.90E+00	2.81E+00	F	PCI/L	10/28/2003	GMS
TRA07001RH	TRA07201RH	USGS-068	NA	Europium-152	-1.00E+00	3.72E+00	F	PCI/L	10/20/2003	GMS
TRA07301RH	TRA07401RH	PW-11	80.3	Europium-152	4.60E+00	2.87E+00	F	PCI/L	10/29/2003	GMS
TRA05701RH	TRA05801RH	TRA06001RH	134.5	Europium-154	2.81E+00	2.78E+00	F	PCI/L	10/29/2003	GMS
TRA06101RH	TRA06102RH	USGS-053	133	Europium-154	5.01E+00	2.72E+00	F	PCI/L	10/28/2003	GMS
TRA06401RH	TRA06501RH	USGS-054	90	Europium-154	-1.03E-01	1.84E+00	F	PCI/L	10/29/2003	GMS
TRA06601RH	TRA06701RH	USGS-054	91	Europium-154	3.93E+00	1.74E+00	F	PCI/L	10/23/2003	GMS
TRA06201RH	TRA06401RH	HWY-3	750	Europium-154	-4.53E+00	2.62E+00	F	PCI/L	10/22/2003	GMS
TRA06501RH	TRA06801RH	TRA-06	562	Europium-154	-2.67E+00	2.39E+00	F	PCI/L	10/20/2003	GMS
TRA06601RH	TRA06901RH	TRA-07	501	Europium-154	2.28E+00	2.24E+00	F	PCI/L	10/20/2003	GMS
TRA06001RH	TRA06701RH	TRA-08	501.5	Europium-154	3.17E+00	2.05E+00	F	PCI/L	10/22/2003	GMS
TRA06801RH	TRA06901RH	USGS-058	503	Europium-154	-3.65E-01	2.02E+00	F	PCI/L	10/23/2003	GMS
TRA06001RH	TRA06201RH	USGS-065	498	Europium-154	2.26E+00	2.05E+00	F	PCI/L	10/23/2003	GMS
TRA07001RH	TRA07201RH	MIDDLE-1823	729.7	Europium-154	-4.09E+00	3.00E+00	F	PCI/L	10/27/2003	GMS
TRA07301RH	TRA07401RH	FIELD BLANK	NA	Europium-154	7.25E+00	4.41E+00	F	PCI/L	10/28/2003	GMS
TRA05801RH	TRA06001RH	EQUIP RINSATE	NA	Europium-154	2.73E+00	2.74E+00	F	PCI/L	10/20/2003	GMS
TRA06101RH	TRA06201RH	USGS-068	80.3	Europium-154	-4.23E+00	2.55E+00	F	PCI/L	10/29/2003	GMS
TRA06401RH	TRA06501RH	PW-11	134.5	Europium-155	-3.70E-01	2.05E+00	F	PCI/L	10/29/2003	GMS
TRA06601RH	TRA06701RH	PW-12	133	Europium-155	4.89E+00	2.70E+00	F	PCI/L	10/28/2003	GMS
TRA06801RH	TRA06901RH	USGS-053	90	Europium-155	6.83E+00	3.54E+00	F	PCI/L	10/29/2003	GMS
TRA06001RH	TRA06101RH	USGS-054	91	Europium-155	2.97E+00	3.33E+00	F	PCI/L	10/29/2003	GMS
TRA06201RH	TRA06301RH	USGS-054	91	Europium-155	-5.30E+00	3.15E+00	F	PCI/L	10/23/2003	GMS
TRA06401RH	TRA06501RH	USGS-054	91	Europium-155	-6.10E-01	2.38E+00	F	PCI/L	10/23/2003	GMS
TRA06601RH	TRA06701RH	USGS-055	81	Europium-155	-1.67E-01	3.31E+00	F	PCI/L	10/22/2003	GMS
TRA06801RH	TRA06901RH	TRA-07	501	Europium-155	3.85E+00	3.68E+00	F	PCI/L	10/22/2003	GMS
TRA06001RH	TRA06101RH	TRA-08	501.5	Europium-155	-5.19E-02	3.36E+00	F	PCI/L	10/20/2003	GMS
TRA06201RH	TRA06301RH	HWY-3	750	Europium-155	1.20E+00	3.47E+00	F	PCI/L	10/20/2003	GMS
TRA06401RH	TRA06501RH	TRA-06	562	Europium-155	1.20E+00	3.47E+00	F	PCI/L	10/20/2003	GMS
TRA06601RH	TRA06701RH	TRA-07	501	Europium-155	3.85E+00	3.68E+00	F	PCI/L	10/23/2003	GMS
TRA06801RH	TRA06901RH	TRA-08	501.5	Europium-155	9.89E-01	2.96E+00	F	PCI/L	10/23/2003	GMS
TRA06001RH	TRA06101RH	USGS-058	503	Europium-155	-3.79E+00	2.34E+00	F	PCI/L	10/23/2003	GMS
TRA06201RH	TRA06301RH	USGS-065	498	Europium-155	1.03E+01	3.92E+00	F	PCI/L	10/27/2003	GMS
TRA06401RH	TRA06501RH	MIDDLE-1823	729.7	Europium-155	4.59E+00	3.45E+00	F	PCI/L	10/28/2003	GMS
TRA06601RH	TRA06701RH	FIELD BLANK	NA	Europium-155	-1.55E+00	3.42E+00	F	PCI/L	10/20/2003	GMS
TRA06801RH	TRA06901RH	EQUIP RINSATE	NA	Europium-155	-2.54E+00	3.37E+00	F	PCI/L	10/29/2003	GMS
TRA06001RH	TRA06101RH	USGS-068	80.3	Europium-155	5.32E+00	3.11E+00	F	PCI/L	10/29/2003	GMS
TRA06201RH	TRA06301RH	PW-11	134.5	Iodine-129	3.09E-02	3.37E-02	F	PCI/L	10/28/2003	GMS
TRA06401RH	TRA06501RH	PW-12	133	Iodine-129	2.92E-02	3.51E-02	F	PCI/L	10/29/2003	GMS
TRA06601RH	TRA06701RH	USGS-053	90	Iodine-129	3.77E-02	3.42E-02	F	PCI/L	10/29/2003	GMS
TRA06801RH	TRA06901RH	USGS-054	91	Iodine-129	4.30E-02	2.45E-02	F	PCI/L	10/23/2003	GMS
TRA06001RH	TRA06101RH	TRA-06	562	Iodine-129	5.45E-02	3.09E-02	F	PCI/L	10/23/2003	GMS
TRA06201RH	TRA06301RH	TRA-07	501	Iodine-129	-5.80E-02	2.76E-02	F	PCI/L	10/22/2003	GMS
TRA06401RH	TRA06501RH	HWY-3	750	Iodine-129	-6.46E-02	4.23E-02	F	PCI/L	10/20/2003	GMS
TRA06601RH	TRA06701RH	TRA-08	501.5	Iodine-129	2.89E-02	3.65E-02	F	PCI/L	10/20/2003	GMS
TRA06801RH	TRA06901RH	USGS-058	503	Iodine-129	-6.72E-03	1.70E-02	F	PCI/L	10/22/2003	GMS
TRA06001RH	TRA06101RH	TRA-07	498	Iodine-129	3.19E-02	2.59E-02	F	PCI/L	10/23/2003	GMS
TRA06201RH	TRA06301RH	TRA-08	501.5	Iodine-129	4.79E-02	3.06E-02	F	PCI/L	10/23/2003	GMS
TRA06401RH	TRA06501RH	USGS-065	498	Iodine-129	3.90E-02	3.78E-02	F	PCI/L	10/27/2003	GMS
TRA06601RH	TRA06701RH	MIDDLE-1823	729.7	Iodine-129	-8.05E-03	2.17E-02	F	PCI/L	10/28/2003	GMS

TRA07201UX	FIELD BLANK	NA	NA	Iodine-129	3.72E-02	PCI/L	GMS	10/20/2003
TRA07301UX	EQUIP RINSATE	USGS-068	80.3	Iodine-129	6.27E-02	PCI/L	GMS	10/29/2003
TRA07401UX		PW-11	134.5	Manganese-54	-2.38E-02	PCI/L	GMS	10/29/2003
TRA05701RH		PW-12	133	Manganese-54	4.68E-02	PCI/L	GMS	10/28/2003
TRA05801RH		USGS-053	90	Manganese-54	-6.82E-01	PCI/L	GMS	10/29/2003
TRA06001RH		USGS-054	91	Manganese-54	8.23E-01	PCI/L	GMS	10/29/2003
TRA06101RH		USGS-054	91	Manganese-54	-1.06E+00	PCI/L	GMS	10/29/2003
TRA06102RH		USGS-054	81	Manganese-54	-3.36E-01	PCI/L	GMS	10/29/2003
TRA06201RH		HWY-3	750	Manganese-54	7.03E-01	PCI/L	GMS	10/29/2003
TRA06401RH		TRA-06	562	Manganese-54	1.25E-01	PCI/L	GMS	10/23/2003
TRA06501RH		TRA-07	501	Manganese-54	1.17E-01	PCI/L	GMS	10/23/2003
TRA06601RH		TRA-08	501.5	Manganese-54	6.07E-01	PCI/L	GMS	10/22/2003
TRA06701RH		USGS-058	503	Manganese-54	1.03E+00	PCI/L	GMS	10/23/2003
TRA06801RH		USGS-065	498	Manganese-54	-8.47E-02	PCI/L	GMS	10/20/2003
TRA06901RH		MIDDLE-1823	729.7	Manganese-54	8.67E-01	PCI/L	GMS	10/23/2003
TRA07001RH		FIELD BLANK	NA	Manganese-54	8.69E-01	PCI/L	GMS	10/20/2003
TRA07201RH		EQUIP RINSATE	NA	Manganese-54	-1.15E+00	PCI/L	GMS	10/27/2003
TRA07301RH		USGS-068	80.3	Manganese-54	9.21E-01	PCI/L	GMS	10/27/2003
TRA07401RH		PW-11	134.5	Manganese-54	8.81E-01	PCI/L	GMS	10/28/2003
TRA05701RH		PW-12	133	Niobium-95	-1.20E+00	PCI/L	GMS	10/28/2003
TRA05801RH		USGS-053	90	Niobium-95	7.21E-01	PCI/L	GMS	10/29/2003
TRA06001RH		USGS-054	91	Niobium-95	8.58E-01	PCI/L	GMS	10/29/2003
TRA06101RH		USGS-054	91	Niobium-95	-1.05E-01	PCI/L	GMS	10/29/2003
TRA06102RH		USGS-055	81	Niobium-95	8.54E-01	PCI/L	GMS	10/29/2003
TRA06201RH		HWY-3	750	Niobium-95	3.35E-01	PCI/L	GMS	10/29/2003
TRA06401RH		TRA-06	562	Niobium-95	1.04E+00	PCI/L	GMS	10/29/2003
TRA06501RH		TRA-07	501	Niobium-95	-1.04E+00	PCI/L	GMS	10/29/2003
TRA06601RH		TRA-08	501.5	Niobium-95	1.29E+00	PCI/L	GMS	10/29/2003
TRA06701RH		USGS-058	503	Niobium-95	7.24E-02	PCI/L	GMS	10/29/2003
TRA06801RH		MIDDLE-1823	729.7	Niobium-95	7.07E-01	PCI/L	GMS	10/29/2003
TRA06901RH		FIELD BLANK	NA	Niobium-95	-5.17E-01	PCI/L	GMS	10/28/2003
TRA07001RH		EQUIP RINSATE	NA	Niobium-95	1.00E+00	PCI/L	GMS	10/29/2003
TRA07201RH		USGS-068	80.3	Niobium-95	9.44E-01	PCI/L	GMS	10/29/2003
TRA05701RH		PW-11	134.5	Niobium-95	1.56E+00	PCI/L	GMS	10/29/2003
TRA05801RH		PW-12	133	Niobium-95	3.75E-01	PCI/L	GMS	10/29/2003
TRA06001RH		USGS-053	90	Niobium-95	1.24E+00	PCI/L	GMS	10/23/2003
TRA06101RH		USGS-054	91	Niobium-95	1.77E+00	PCI/L	GMS	10/23/2003
TRA06102RH		USGS-054	91	Niobium-95	1.07E+00	PCI/L	GMS	10/23/2003
TRA06201RH		USGS-055	81	Niobium-95	9.85E-01	PCI/L	GMS	10/22/2003
TRA06401RH		HWY-3	750	Niobium-95	-1.10E+00	PCI/L	GMS	10/20/2003
TRA06501RH		TRA-06	562	Niobium-95	1.64E+00	PCI/L	GMS	10/20/2003
TRA06601RH		TRA-07	501	Niobium-95	4.47E-02	PCI/L	GMS	10/20/2003
TRA06701RH		TRA-08	501.5	Niobium-95	1.39E+00	PCI/L	GMS	10/20/2003
TRA06801RH		USGS-058	503	Niobium-95	-1.96E-01	PCI/L	GMS	10/27/2003
TRA06901RH		MIDDLE-1823	729.7	Niobium-95	1.46E+00	PCI/L	GMS	10/22/2003
TRA07001RH		FIELD BLANK	NA	Niobium-95	1.62E+00	PCI/L	GMS	10/23/2003
TRA07201RH		EQUIP RINSATE	NA	Niobium-95	1.24E+00	PCI/L	GMS	10/23/2003
TRA07301RH		USGS-068	80.3	Niobium-95	1.20E+00	PCI/L	GMS	10/23/2003
TRA07401RH		PW-11	134.5	Niobium-95	1.58E+00	PCI/L	GMS	10/28/2003
TRA05701RH		PW-12	133	Radium-226	1.24E+00	PCI/L	GMS	10/28/2003
TRA06001RH		USGS-053	90	Radium-226	5.23E-01	PCI/L	GMS	10/29/2003
TRA06101RH		USGS-054	91	Radium-226	6.04E-01	PCI/L	GMS	10/29/2003
TRA06102RH		USGS-054	91	Radium-226	-2.49E+00	PCI/L	GMS	10/29/2003
TRA06201RH		USGS-055	81	Radium-226	1.91E+00	PCI/L	GMS	10/29/2003
TRA06401RH		HWY-3	750	Radium-226	5.23E-01	PCI/L	GMS	10/28/2003
TRA06501RH		TRA-06	562	Radium-226	1.41E+00	PCI/L	GMS	10/28/2003
TRA06601RH		TRA-07	501	Radium-226	1.41E+00	PCI/L	GMS	10/28/2003
TRA06701RH		TRA-08	501.5	Radium-226	1.33E+00	PCI/L	GMS	10/29/2003
TRA06801RH		USGS-065	498	Radium-226	-1.40E+00	PCI/L	GMS	10/29/2003
TRA06901RH		MIDDLE-1823	729.7	Radium-226	-2.34E-01	PCI/L	GMS	10/29/2003
TRA07001RH		FIELD BLANK	NA	Radium-226	1.05E+00	PCI/L	GMS	10/29/2003
TRA07201RH		EQUIP RINSATE	NA	Radium-226	1.62E+00	PCI/L	GMS	10/28/2003
TRA07301RH		USGS-068	80.3	Radium-226	1.24E+00	PCI/L	GMS	10/28/2003
TRA07401RH		PW-11	134.5	Radium-226	1.58E+00	PCI/L	GMS	10/29/2003
TRA05701RH		PW-12	133	Radium-226	2.24E+00	PCI/L	GMS	10/29/2003
TRA06001RH		USGS-053	90	Radium-226	5.41E+00	PCI/L	GMS	10/29/2003
TRA06101RH		USGS-054	91	Radium-226	4.88E+00	PCI/L	GMS	10/29/2003
TRA06102RH		USGS-054	91	Radium-226	4.88E+00	PCI/L	GMS	10/29/2003
TRA06201RH		USGS-055	81	Radium-226	4.88E+00	PCI/L	GMS	10/29/2003
TRA06401RH		HWY-3	750	Radium-226	5.90E+00	PCI/L	GMS	10/29/2003
TRA06501RH		TRA-06	562	Radium-226	4.85E+00	PCI/L	GMS	10/23/2003
TRA06601RH		TRA-07	501	Radium-226	4.85E+00	PCI/L	GMS	10/23/2003
TRA06701RH		TRA-08	501.5	Radium-226	4.04E+00	PCI/L	GMS	10/23/2003
TRA06801RH		USGS-058	503	Radium-226	3.47E+00	PCI/L	GMS	10/23/2003
TRA06901RH		USGS-065	498	Radium-226	4.53E+00	PCI/L	GMS	10/23/2003
TRA07001RH		MIDDLE-1823	729.7	Radium-226	2.72E+00	PCI/L	GMS	10/22/2003
TRA07201RH		FIELD BLANK	NA	Radium-226	3.03E+00	PCI/L	GMS	10/22/2003
TRA07301RH		EQUIP RINSATE	NA	Radium-226	4.65E-01	PCI/L	GMS	10/20/2003
TRA07401RH		USGS-068	80.3	Radium-226	3.89E+00	PCI/L	GMS	10/20/2003
TRA05701RH		PW-11	134.5	Ruthenium-103	-1.26E+00	PCI/L	GMS	10/28/2003
TRA06001RH		PW-12	133	Ruthenium-103	9.33E-01	PCI/L	GMS	10/28/2003
TRA06101RH		USGS-053	90					
TRA06102RH		USGS-054	91					
TRA06201RH		USGS-055	81					
TRA06401RH		TRA-06	562				</	

TRA05801RH	PW-12	133	Ruthenium-103	2.06E+00	1.20E+00	5.06E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA06001RH	USGS-053	90	Ruthenium-103	-2.63E+00	1.12E+00	3.61E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA06101RH	USGS-054	91	Ruthenium-103	-2.49E+00	1.05E+00	3.35E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06102RH	USGS-054	91	Ruthenium-103	-9.28E-01	9.12E-01	3.15E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06201RH	USGS-055	81	Ruthenium-103	1.09E+01	6.50E+00	4.99E+00	F	F	F	GMS	10/22/2003	PCI/L
TRA06401RH	HWY-3	750	Ruthenium-103	2.00E+00	1.39E+00	5.43E+00	F	F	F	GMS	10/20/2003	PCI/L
TRA06501RH	TRA-06	562	Ruthenium-103	-1.61E+00	1.35E+00	4.72E+00	F	F	F	GMS	10/20/2003	PCI/L
TRA06601RH	TRA-07	501	Ruthenium-103	1.27E-03	1.45E+00	5.11E+00	F	F	F	GMS	10/22/2003	PCI/L
TRA06701RH	TRA-08	501.5	Ruthenium-103	-1.98E+00	1.20E+00	3.77E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06801RH	USGS-058	503	Ruthenium-103	-9.82E-01	1.21E+00	3.66E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06901RH	USGS-065	498	Ruthenium-103	7.60E-02	1.27E+00	4.40E+00	F	F	F	GMS	10/27/2003	PCI/L
TRA07001RH	MIDDLE-1823	729.7	Ruthenium-103	-3.75E-02	1.74E+00	6.23E+00	F	F	F	GMS	10/28/2003	PCI/L
TRA07201RH	FIELD BLANK	NA	Ruthenium-103	-2.91E-01	1.36E+00	4.83E+00	F	F	F	GMS	10/20/2003	PCI/L
TRA07301RH	EQUIP RINSATE	NA	Ruthenium-103	-6.49E-01	1.24E+00	4.44E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA07401RH	USGS-068	80.3	Ruthenium-103	-1.53E+00	1.04E+00	3.32E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA05701RH	PW-11	134.5	Ruthenium-106	5.38E+00	6.44E+00	2.42E+01	F	F	F	GMS	10/28/2003	PCI/L
TRA05801RH	PW-12	133	Ruthenium-106	1.13E+01	8.51E+00	3.25E+01	F	F	F	GMS	10/29/2003	PCI/L
TRA06001RH	USGS-053	90	Ruthenium-106	1.71E+00	8.26E+00	3.02E+01	F	F	F	GMS	10/29/2003	PCI/L
TRA06101RH	USGS-054	91	Ruthenium-106	-1.30E+01	7.59E+00	2.50E+01	F	F	F	GMS	10/23/2003	PCI/L
TRA06102RH	USGS-054	91	Ruthenium-106	6.38E+00	5.51E+00	2.03E+01	F	F	F	GMS	10/23/2003	PCI/L
TRA06201RH	USGS-055	81	Ruthenium-106	-4.05E+00	9.23E+00	3.19E+01	F	F	F	GMS	10/22/2003	PCI/L
TRA06401RH	HWY-3	750	Ruthenium-106	1.33E+00	8.07E+00	2.99E+01	F	F	F	GMS	10/20/2003	PCI/L
TRA06501RH	TRA-06	562	Ruthenium-106	-3.27E-01	9.18E+00	2.97E+01	F	F	F	GMS	10/20/2003	PCI/L
TRA06601RH	TRA-07	501	Ruthenium-106	6.63E+00	8.00E+00	2.95E+01	F	F	F	GMS	10/22/2003	PCI/L
TRA06701RH	TRA-08	501.5	Ruthenium-106	1.96E+00	6.24E+00	2.27E+01	F	F	F	GMS	10/23/2003	PCI/L
TRA06801RH	USGS-058	503	Ruthenium-106	-1.26E+00	6.46E+00	2.27E+01	F	F	F	GMS	10/23/2003	PCI/L
TRA06901RH	USGS-065	498	Ruthenium-106	-6.71E-01	7.93E+00	2.88E+01	F	F	F	GMS	10/27/2003	PCI/L
TRA07001RH	MIDDLE-1823	729.7	Ruthenium-106	-2.57E+01	1.39E+01	4.52E+01	F	F	F	GMS	10/28/2003	PCI/L
TRA07201RH	FIELD BLANK	NA	Ruthenium-106	5.44E+00	6.91E+00	2.61E+01	F	F	F	GMS	10/20/2003	PCI/L
TRA07301RH	EQUIP RINSATE	NA	Ruthenium-106	-6.70E+00	8.74E+00	3.06E+01	F	F	F	GMS	10/29/2003	PCI/L
TRA05701RH	PW-11	134.5	Silver-108m	6.75E+00	6.75E+00	2.18E+01	F	F	F	GMS	10/27/2003	PCI/L
TRA06001RH	PW-12	133	Silver-108m	-3.72E-01	9.77E-01	2.62E+00	F	F	F	GMS	10/28/2003	PCI/L
TRA06101RH	USGS-053	90	Silver-108m	6.83E-01	7.47E-01	3.07E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA06201RH	USGS-054	91	Silver-108m	-3.72E-01	9.77E-01	3.34E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA06401RH	HWY-3	750	Silver-108m	7.60E-01	9.49E-01	2.76E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06501RH	TRA-06	562	Silver-108m	1.05E+00	7.39E-01	2.13E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06601RH	TRA-07	501	Silver-108m	-2.66E-01	6.45E-01	3.45E+00	F	F	F	GMS	10/22/2003	PCI/L
TRA06701RH	TRA-08	501.5	Silver-108m	2.36E+00	1.14E+00	2.59E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06801RH	USGS-058	503	Silver-108m	-1.61E-01	8.15E-01	2.80E+00	F	F	F	GMS	10/20/2003	PCI/L
TRA06901RH	USGS-065	498	Silver-108m	1.14E+00	8.60E-01	3.18E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA07001RH	MIDDLE-1823	729.7	Silver-108m	2.00E-01	9.40E-01	3.34E+00	F	F	F	GMS	10/22/2003	PCI/L
TRA07201RH	FIELD BLANK	NA	Silver-108m	-1.43E-01	7.67E-01	4.42E+00	F	F	F	GMS	10/28/2003	PCI/L
TRA07301RH	EQUIP RINSATE	NA	Silver-108m	-1.29E+00	6.98E-01	3.46E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA07401RH	USGS-068	80.3	Silver-108m	-3.12E-01	8.58E-01	2.16E+00	F	F	F	GMS	10/27/2003	PCI/L
TRA05701RH	PW-11	134.5	Silver-108m	4.86E-01	1.31E+00	2.72E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06001RH	PW-12	133	Silver-108m	8.47E-01	9.42E-01	3.46E+00	F	F	F	GMS	10/20/2003	PCI/L
TRA06101RH	USGS-053	90	Silver-108m	4.29E-01	9.09E-01	2.94E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA06201RH	USGS-054	91	Silver-108m	1.92E-03	7.15E-01	2.72E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06401RH	HWY-3	750	Silver-108m	1.43E-01	7.67E-01	2.67E+00	F	F	F	GMS	10/28/2003	PCI/L
TRA06501RH	TRA-06	562	Silver-108m	8.60E-01	8.60E-01	2.94E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA06601RH	TRA-07	501	Silver-108m	2.00E-01	9.40E-01	4.42E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA06701RH	TRA-08	501.5	Silver-108m	-1.43E-01	7.67E-01	2.67E+00	F	F	F	GMS	10/28/2003	PCI/L
TRA06801RH	USGS-058	503	Silver-108m	-1.29E+00	6.98E-01	2.94E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA06901RH	USGS-065	498	Silver-108m	-3.12E-01	8.58E-01	2.72E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA07001RH	MIDDLE-1823	729.7	Silver-108m	4.86E-01	1.31E+00	2.01E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA07201RH	FIELD BLANK	NA	Silver-108m	8.47E-01	9.42E-01	3.46E+00	F	F	F	GMS	10/20/2003	PCI/L
TRA07301RH	EQUIP RINSATE	NA	Silver-108m	4.29E-01	9.09E-01	2.94E+00	F	F	F	GMS	10/29/2003	PCI/L
TRA07401RH	USGS-068	80.3	Silver-108m	1.92E-03	7.15E-01	2.72E+00	F	F	F	GMS	10/23/2003	PCI/L
TRA05701												

USGS-055	81	Silver-110m	2.32E-01	GMS	3.65E+00
HWY-3	750	Silver-110m	-6.93E-01	GMS	3.09E+00
TRA-06	562	Silver-110m	-1.74E-01	GMS	3.20E+00
TRA-07	501	Silver-110m	5.95E-01	GMS	3.09E+00
TRA-08	501.5	Silver-110m	7.21E-01	GMS	2.60E+00
USGS-058	503	Silver-110m	-7.78E-01	GMS	2.30E+00
USGS-065	498	Silver-110m	-1.42E-01	GMS	3.00E+00
MIDDLE-1823	729.7	Silver-110m	6.94E-01	GMS	4.99E+00
FIELD BLANK	NA	Silver-110m	-7.54E-01	GMS	2.87E+00
EQUIP RINSATE	NA	Silver-110m	8.43E-01	GMS	3.32E+00
USGS-068	80.3	Silver-110m	2.49E-01	GMS	2.37E+00
PW-11	134.5	Silver-110m	-2.53E-01	GFP	4.08E-01
PW-12	133	Strontrium-90	1.88E+00	GFP	6.51E-01
USGS-053	90	Strontrium-90	7.63E+01	GFP	10/29/2003
USGS-054	91	Strontrium-90	4.61E+01	GFP	4.95E-01
USGS-054	91	Strontrium-90	5.10E+01	GFP	4.94E-01
USGS-055	81	Strontrium-90	4.68E+01	GFP	4.79E-01
HWY-3	750	Strontrium-90	3.67E+01	GFP	6.29E-01
TRA-06	562	Strontrium-90	1.95E-01	GFP	2.88E-01
TRA-07	501	Strontrium-90	1.03E-01	GFP	2.16E-01
TRA-08	501.5	Strontrium-90	2.79E-01	GFP	4.60E-01
USGS-058	503	Strontrium-90	1.46E-01	GFP	4.54E-01
USGS-065	498	Strontrium-90	9.34E-02	GFP	2.91E-01
MIDDLE-1823	729.7	Strontrium-90	2.32E-01	GFP	5.45E-01
FIELD BLANK	NA	Strontrium-90	5.25E-02	GFP	3.27E-01
EQUIP RINSATE	NA	Strontrium-90	6.71E-02	GFP	2.75E-01
USGS-068	80.3	Strontrium-90	3.79E-01	GFP	4.06E-01
PW-11	134.5	Technetium-99	-1.65E+00	GSC	8.73E+00
PW-12	133	Technetium-99	-7.87E-01	GSC	7.92E+00
USGS-053	90	Technetium-99	-5.35E+00	GSC	10/29/2003
USGS-054	91	Technetium-99	-4.38E+00	GSC	8.61E+00
USGS-054	91	Technetium-99	-5.27E+00	GSC	9.06E+00
USGS-055	81	Technetium-99	-1.86E+00	GSC	7.97E+00
HWY-3	750	Technetium-99	-3.44E+00	GSC	10/20/2003
TRA-06	562	Technetium-99	-5.11E+00	GSC	1.25E+01
TRA-07	501	Technetium-99	-6.82E-02	GSC	10/22/2003
TRA-08	501.5	Technetium-99	-2.03E+00	GSC	10/23/2003
USGS-058	503	Technetium-99	-4.63E+00	GSC	10/23/2003
USGS-065	498	Technetium-99	-3.20E+00	GSC	10/27/2003
MIDDLE-1823	729.7	Technetium-99	-6.82E-02	GSC	10/28/2003
FIELD BLANK	NA	Technetium-99	-2.51E+00	GSC	10/23/2003
EQUIP RINSATE	NA	Technetium-99	-5.11E+00	GSC	10/20/2003
USGS-068	80.3	Technetium-99	-3.16E+00	GSC	1.07E+01
PW-11	134.5	Tritium	2.57E+00	GSC	8.86E+00
PW-12	133	Tritium	2.60E+00	GSC	8.88E+00
USGS-053	90	Tritium	-3.28E+00	GSC	8.76E+00
USGS-054	91	Tritium	-1.08E+01	GSC	8.91E+00
MIDDLE-1823	729.7	Tritium	-4.50E-01	GSC	2.29E+02
FIELD BLANK	NA	Tritium	-2.18E+00	GSC	4.01E+02
EQUIP RINSATE	NA	Tritium	-3.28E+00	GSC	2.34E+02
USGS-068	80.3	Tritium	5.69E+02	GSC	2.30E+02
PW-11	134.5	Tritium	1.63E+03	GSC	2.43E+02
PW-12	133	Tritium	4.83E+03	GSC	2.27E+02
USGS-053	90	Tritium	9.22E+01	GSC	2.29E+02
USGS-054	91	Tritium	1.47E+02	GSC	2.29E+02
USGS-055	81	Tritium	6.19E+03	GSC	10/20/2003
HWY-3	750	Tritium	8.56E+01	GSC	10/22/2003
TRA-06	562	Tritium	2.50E+03	GSC	10/20/2003
TRA-07	501	Tritium	1.83E+04	GSC	10/22/2003

TRA06701RH	501.5	Tritium	3.96E+03	PCI/L	10/23/2003	F
TRA06801RH	503	Tritium	2.07E+03	PCI/L	10/23/2003	F
TRA06901RH	498	Tritium	8.94E+03	PCI/L	10/27/2003	F
MIDDLE-1823	729.7	Tritium	2.23E+02	PCI/L	10/28/2003	F
FIELD BLANK	NA	Tritium	1.20E+02	PCI/L	10/20/2003	F
EQUIP RINSATE	USGS-068	NA	8.46E+02	PCI/L	10/24E+02	F
PW-11	134.5	Uranium-235	9.43E+01	PCI/L	10/29/2003	LSC
PW-12	133	Uranium-235	2.10E+02	PCI/L	10/29/2003	LSC
USGS-053	90	Uranium-235	7.51E+01	PCI/L	10/29/2003	LSC
HWY-3	750	Uranium-235	2.70E+02	PCI/L	10/29/2003	LSC
USGS-054	91	Uranium-235	7.86E+01	PCI/L	10/28/2003	GMS
TRA06101RH	562	Uranium-235	5.76E+00	PCI/L	10/23/2003	GMS
TRA06102RH	91	Uranium-235	1.72E+00	PCI/L	10/29/2003	GMS
TRA05801RH	81	Uranium-235	9.70E+00	PCI/L	10/22/2003	GMS
TRA06001RH	750	Uranium-235	3.01E+00	PCI/L	10/20/2003	GMS
TRA06401RH	562	Uranium-235	-1.79E+00	PCI/L	10/20/2003	GMS
TRA06501RH	501	Uranium-235	5.27E+00	PCI/L	10/20/2003	GMS
TRA06601RH	501.5	Uranium-235	5.67E+00	PCI/L	10/22/2003	GMS
TRA06701RH	501.5	Uranium-235	9.04E+00	PCI/L	10/23/2003	GMS
TRA06801RH	503	Uranium-235	6.60E+00	PCI/L	10/23/2003	GMS
TRA06901RH	498	Uranium-235	6.40E+00	PCI/L	10/27/2003	GMS
TRA07001RH	729.7	Uranium-235	4.71E+00	PCI/L	10/28/2003	GMS
TRA07201RH	NA	Uranium-235	7.35E+00	PCI/L	10/23/2003	GMS
FIELD BLANK	USGS-055	NA	6.46E+00	PCI/L	10/24E+01	F
EQUIP RINSATE	USGS-058	NA	6.60E+00	PCI/L	10/23/2003	F
USGS-068	80.3	Uranium-235	6.52E+00	PCI/L	10/23/2003	F
MIDDLE-1823	134.5	Zinc-65	6.67E-01	PCI/L	10/23/2003	F
FIELD BLANK	USGS-054	Zinc-65	6.67E-01	PCI/L	10/23/2003	F
EQUIP RINSATE	USGS-055	Zinc-65	6.56E+00	PCI/L	10/23/2003	F
USGS-068	90	Zinc-65	1.83E+01	PCI/L	10/27/2003	F
PW-11	133	Zinc-65	1.45E+01	PCI/L	10/28/2003	F
TRA06101RH	562	Zinc-65	-8.03E-01	PCI/L	10/23/2003	F
TRA06201RH	91	Zinc-65	2.36E+01	PCI/L	10/29/2003	F
TRA06301RH	81	Zinc-65	1.97E+00	PCI/L	10/29/2003	F
TRA06401RH	90	Zinc-65	-3.19E+00	PCI/L	10/29/2003	F
TRA06501RH	80.3	Zinc-65	-1.70E+00	PCI/L	10/23/2003	F
TRA06601RH	91	Zinc-65	2.34E+00	PCI/L	10/28/2003	F
TRA06701RH	91	Zinc-65	-4.28E+00	PCI/L	10/23/2003	F
TRA06801RH	81	Zinc-65	1.55E+00	PCI/L	10/29/2003	F
TRA06901RH	80.3	Zinc-65	6.95E+00	PCI/L	10/29/2003	F
TRA07001RH	750	Zinc-65	2.57E+00	PCI/L	10/23/2003	F
TRA07201RH	562	Zinc-65	1.84E+00	PCI/L	10/24E+00	F
TRA07301RH	133	Zinc-65	1.23E+00	PCI/L	10/22/2003	F
TRA07401RH	501	Zinc-65	2.49E+00	PCI/L	10/23/2003	F
TRA06101RH	501.5	Zinc-65	2.10E+00	PCI/L	10/29/2003	F
TRA06201RH	750	Zinc-65	6.95E+00	PCI/L	10/20/2003	F
TRA06301RH	562	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA06401RH	91	Zinc-65	1.75E+00	PCI/L	10/23/2003	F
TRA06501RH	91	Zinc-65	1.46E+00	PCI/L	10/20/2003	F
TRA06601RH	81	Zinc-65	-2.41E+00	PCI/L	10/23/2003	F
TRA06701RH	90	Zinc-65	-3.19E+00	PCI/L	10/22/2003	F
TRA06801RH	80.3	Zinc-65	1.75E+00	PCI/L	10/23/2003	F
TRA06901RH	750	Zinc-65	1.46E+00	PCI/L	10/27/2003	F
TRA07001RH	562	Zinc-65	2.03E+00	PCI/L	10/23/2003	F
TRA07201RH	133	Zinc-65	1.23E+00	PCI/L	10/22/2003	F
TRA06101RH	501	Zinc-65	2.49E+00	PCI/L	10/23/2003	F
TRA06201RH	501.5	Zinc-65	2.10E+00	PCI/L	10/23/2003	F
TRA06301RH	750	Zinc-65	1.98E+00	PCI/L	10/20/2003	F
TRA06401RH	562	Zinc-65	1.46E+00	PCI/L	10/23/2003	F
TRA06501RH	91	Zinc-65	-2.41E+00	PCI/L	10/23/2003	F
TRA06601RH	81	Zinc-65	-3.19E+00	PCI/L	10/22/2003	F
TRA06701RH	80.3	Zinc-65	1.75E+00	PCI/L	10/23/2003	F
TRA06801RH	90	Zinc-65	1.46E+00	PCI/L	10/27/2003	F
TRA06901RH	750	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA07001RH	562	Zinc-65	2.03E+00	PCI/L	10/23/2003	F
TRA07201RH	133	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06101RH	501.5	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA06201RH	503	Zinc-65	-2.97E+00	PCI/L	10/23/2003	F
TRA06301RH	498	Zinc-65	1.46E+00	PCI/L	10/20/2003	F
TRA06401RH	91	Zinc-65	-2.41E+00	PCI/L	10/23/2003	F
TRA06501RH	81	Zinc-65	-3.19E+00	PCI/L	10/22/2003	F
TRA06601RH	90	Zinc-65	1.75E+00	PCI/L	10/23/2003	F
TRA06701RH	81	Zinc-65	1.46E+00	PCI/L	10/23/2003	F
TRA06801RH	80.3	Zinc-65	1.23E+00	PCI/L	10/27/2003	F
TRA06901RH	750	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA07001RH	562	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA07201RH	133	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06101RH	501.5	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA06201RH	503	Zinc-65	-2.97E+00	PCI/L	10/23/2003	F
TRA06301RH	498	Zinc-65	1.46E+00	PCI/L	10/20/2003	F
TRA06401RH	91	Zinc-65	-3.19E+00	PCI/L	10/23/2003	F
TRA06501RH	81	Zinc-65	1.75E+00	PCI/L	10/23/2003	F
TRA06601RH	90	Zinc-65	1.46E+00	PCI/L	10/27/2003	F
TRA06701RH	81	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06801RH	80.3	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06901RH	750	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA07001RH	562	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA07201RH	133	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06101RH	501.5	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA06201RH	503	Zinc-65	-2.97E+00	PCI/L	10/23/2003	F
TRA06301RH	498	Zinc-65	1.46E+00	PCI/L	10/20/2003	F
TRA06401RH	91	Zinc-65	-3.19E+00	PCI/L	10/23/2003	F
TRA06501RH	81	Zinc-65	1.75E+00	PCI/L	10/23/2003	F
TRA06601RH	90	Zinc-65	1.46E+00	PCI/L	10/27/2003	F
TRA06701RH	81	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06801RH	80.3	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06901RH	750	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA07001RH	562	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA07201RH	133	Zinc-65	1.23E+00	PCI/L	10/23/2003	F
TRA06101RH	501.5	Zinc-65	1.98E+00	PCI/L	10/23/2003	F
TRA06201RH	503	Zinc-65	-2.97E+00	PCI/L	10/23/2003	F
TRA06301RH	498	Zinc-65	1.46E+00	PCI/L	10/20/2003	

TRA07201RH	FIELD BLANK	Zirconium-95	-2.05E+00	1.91E+00	F
TRA07301RH	EQUIP RINSATE	Zirconium-95	1.18E+00	1.90E+00	F
TRA07401RH	USGS-068	Zirconium-95	-2.49E+00	1.47E+00	F

PCI/L	10/20/2003	GMS
PCI/L	10/29/2003	GMS
PCI/L	10/29/2003	GMS

U U U

NA	NA	NA
80.3		

NA	NA	NA
80.3		

FIELD BLANK	EQUIP RINSATE	USGS-068
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TRA07201RH	TRA07301RH	TRA07401RH
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Appendix B

Quality Assurance/Quality Control

Sample Results

Appendix B

Quality Assurance/Quality Control Sample Results

B-1. QUALITY ASSURANCE/QUALITY CONTROL SAMPLING

The purpose of collecting and analyzing quality assurance/quality control samples is to confirm the achievement of project objectives and data quality objectives. The overall objectives associated with Waste Area Group 2 annual groundwater monitoring are discussed in the groundwater monitoring plan (DOE-ID 2003). The overall objectives and quality assurance or quality control sample results for the fiscal year (FY) 2004 sampling effort are discussed in the following subsections.

B-1.1 Precision and Accuracy

The spatial variations in the concentrations of contaminants at individual sites create sampling variability. Additional variability, called measurement error, occurs during sample collection, handling, processing, analysis, quality evaluation, and reporting. Concentrations of contaminants reported represent the true concentrations in the media sampled plus the measurement error, which can be minimized but not eliminated. Though it might not be significant in many cases, it is important to assess the contribution of measurement error to the total error in individual investigations. The analytical results of quality control samples are used to estimate the accuracy and precision, the quantitative descriptions of measurement error, and the bias.

B-1.1.1 Overall Precision

Precision is a measure of the reproducibility of measurements under a given set of conditions. In the field, precision is affected by sample collection procedures and the natural heterogeneity of the matrix. Overall precision (field and laboratory) can be evaluated via duplicate samples collected in the field. Typically, greater precision is required for analytes with very low action levels that are close to background concentrations. Allowable laboratory precision for water samples is defined as having a relative percent difference (RPD) of less than or equal to 20%. Field precision is the difference between overall precision and laboratory precision. Table B-1 summarizes the precision for the FY 2004 round of groundwater monitoring. Using the following formula, the RPD was calculated only for those samples that had true positive values for both the initial sample and the field duplicate:

$$RPD = \frac{|S - D|}{S + D} \times 200 \quad (B-1)$$

where

S = sample

D = duplicate.

As can be seen from the data in Table B-1, the RPD does not exceed 20% for any samples in which the analyte is detected in both the sample and the duplicate, so the overall precision of the FY 2004 data is considered acceptable.

Table B-1. Overall precision for FY 2004 analytical data.

Analyte	Sample	Duplicate	Units	RPD (%)
Chromium (March 04)	5.85	5.61	µg/L	4.19
Chromium (October 03)	1.38	1.38	µg/L	0.00
Radium-226 (March 04)	16	Not detected	pCi/L	—
Strontium-90 (October 03)	51	46.8	pCi/L	8.59
Strontium-90 (March 04)	48.6	48.6	pCi/L	0.00

B-1.1.2 Overall Accuracy

Accuracy is a measure of bias in a measurement system. Accuracy is affected by the methods used for sample preservation, sample handling, field contamination, and sample matrix. The effects of the first three are evaluated using the field blank, trip blank, and equipment rinsate results. The presence of a contaminant in the field blank, trip blank, or rinsate reveals that cross-contamination has occurred.

Laboratory accuracy is ensured through the use of standard methods and calibration standards from the National Institute of Standards and Technology. All instrumentation is calibrated before use per the procedures outlined in the analytical methods required by the Idaho National Engineering and Environmental Laboratory (INEEL) Sample and Analysis Management (SAM) statements of work. Laboratory accuracy is assessed through the use of matrix spikes and laboratory control samples. The number of laboratory quality control samples is specified in the analytical methods employed in the INEEL SAM statements of work. Evaluation criteria for the quality control samples are specified in data-validation technical procedures administered by INEEL SAM. For samples analyzed in accordance with Environmental Protection Agency (EPA) Contract Laboratory Program protocol, validation is also performed in accordance with that protocol. For the FY 2004 data set, the overall accuracy of the analyses is acceptable.

B-1.1.3 Representativeness

Representativeness is a qualitative parameter that expresses the degree to which the sampling and analysis data accurately and precisely represent the characteristic of a population parameter being measured at a given sampling point or for a process or environmental condition. Representativeness is evaluated by determining whether measurements were accurate and the samples represent actual concentrations in the aquifer.

For the FY 2004 sampling activity, all measurements were made according to established EPA and INEEL SAM protocol. Trained personnel followed established INEEL procedures to collect the physical samples.

B-1.1.4 Comparability

Comparability is a qualitative characteristic that refers to the confidence with which one data set can be compared to another. At a minimum, comparable data must be obtained using unbiased sampling designs. If sampling designs are biased, the reasons for selecting another design should be well documented. Data comparability for this sampling activity was ensured through the following efforts:

- All data sets contained the same variables of interest.
- All measurements have been performed and results reported using common units.
- Similar analytical procedures and quality assurance measures have been used.
- All field and laboratory instrumentation had detection limits that were similar to or better than those historically employed.
- Established INEEL procedures were followed to collect samples.
- Wells selected for sampling are identical to those chosen historically.

Sampling rounds are conducted at approximately the same time of year in an effort to negate any effect that changes in groundwater levels due to snowmelt and runoff may have on the data.

B-1.2 Data Validation

Method data validation is the process whereby analytical data are reviewed against set criteria to ensure that the results conform to the requirements of the analytical method and any other specified requirements. For the FY 2004 sampling activities, all laboratory data were validated according to established INEEL SAM and EPA protocols. The limitations and validation reports were previously transmitted to the Agencies in December 2003 and May 2004. No major problems were identified during this method validation process.

B-2. REFERENCES

DOE-ID, 2003, *Groundwater Monitoring Plan for the Test Reactor Area Operable Unit 2-13*,
DOE/ID-10626, Rev. 2, U.S. Department of Energy Idaho Operations Office, February 2003.